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At this 1965 Central and East African conference, lectures and reports were given on radio and television in correspondence education; uses of films, radio, the printed word, and television in adult education in general; and principles of effective and efficient mass media communication. Emphasis was on the value of combined visual and aural learning in which the teacher, the printed word, visual aids, and other media reinforce each other; on the importance of eliciting active student response and participation; on utilizing scarce teaching resources to a country's greatest advantage; and on designing instructional systems to meet specific needs. (Also included are conference resolutions, study group reports, appendixes, a bibliography, and examples of mass media adult education projects in Tanzania.) (ly)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

# the use of MASS MEDIA in the education of ADULTS

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## Conference 1965

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HELD AT THE
EVELYN HONE
COLLEGE OF FURTHER EDUCATION
LUSAKA, ZAMBIA

AC003027

conference

# THE USE OF MASS MEDIA IN THE EDUCATION OF ADULTS

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| speakers: | Mrs Helen Coppen,<br>Institute of Education,<br>University of London. |
| | Patrick G. Delahunty,<br>Ministry of Education,<br>Lusaka. |
| | Homer Kempfer,<br>Agency for International Development,<br>Washington. |
| | John A. Willings,<br>Department of Communication,<br>Evelyn Hone College of Further Education,<br>Lusaka. |
| | Harold C. Wiltshire,<br>Department of Adult Education,<br>University of Nottingham. |

this conference was held at
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in Lusaka, 3 to 8 January 1965.

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" Human history becomes more
and more a race between
education and catastrophe "

H.G. Wells.

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"The Mass Media in the Education of Adults"

Edited by Hans Noak and Morea Parker

preface:

This conference was the second Adult Education Conference held in East and Central Africa. The first was held at Kivukoni College, Dar-es-Salaam in 1964. Its Theme was 'Residential Adult Education'. The purpose of these conferences is to bring together adult educators, to keep abreast of recent developments in this field in East and Central Africa and to study a major issue concerned with Adult Education.

This conference was set up to examine the use of various mass media in relation to the education of adults. Its first objective was to make the conference members aware of the power of the mass media. Here are new and valuable tools to put over the message of adult educators whether they are working in Health Education, Agricultural Extension or Formal Adult Classes.

Before any of these media can be used effectively, an investigation must be made of the conditions under which one or more of these media can be used. The limiting factors at the production end as well as the receiving end must be known.

The effective use of the media depends to some extent on the skill of the man who wants to use them for educational purposes and to an even greater extent on the men or the Statutory Bodies controlling any particular medium.

Costs always enter the calculations in the field of adult education. The relative cost as well as the efficiency of different media must be known for every message which has to be communicated.

Education is always concerned with people. What ultimately matters most is what happens in the minds of individual men and women.

HANS NOAK

## opening address by THE MINISTER OF EDUCATION,
## THE HON. J. MWANAKATWE M.P.

May I, on behalf of the Government and people of Zambia, welcome you all to this conference and to those of you who are visitors to Zambia, I extend a very warm welcome. This is the Second Adult Education Conference to be held in East and Central Africa. It is appropriate that you should have chosen this country and this year to examine the use of mass media in the education of adults. I say it is appropriate because this country has just become independent and you do us a great honour by meeting on our free soil. I also say it is appropriate be because we, along with the rest of Africa, realise the very real shortage of trained manpower available to most newly independent countries and we realise, too, the vast possibilities which adult education offers in the solution of this problem.

The Government of Zambia is giving high priority to the provision of very greatly increased educational facilities for its people and it considers the education of adults as an integral part of this expansion. There are new adult education classes in practically every district of the country and a large number of these now cater for classes up to the G.C.E. 'O' level. Our determination to progress in this field is also symbolised by this splendid college in which you are meeting today. Although this college caters for all kinds of classes ranging from flower arrangement and deportment to G.C.E. and electronics for adult students, not least important in my opinion are the classes which are raising the general standard of education of adult members of society. Classes for adult people are being conducted all over the country by qualified teachers and other educated men and women, all of whom are anxious to share with others the knowledge which they have gained.

My Ministry has recently announced a considerable reducation in adult education fees. This has been done in order that no deserving students will be deterred by the lack of fees. I am convinced that this is a step in the right direction and also that this step foreshadows a great programme of expansion in part-time and evening classes for our adults.

In addition to part-time and evening courses, my Ministry has started a correspondence school for those who live too far away from centres where evening classes are held to be able to make use of them and also for those people who are pursuing higher forms of study than are available at their centres. This month we are celebrating the first anniversary of the starting of the scheme. Last year 150 students were enrolled for studies leading up to Form II and this year there will be 1,000 students and tuition will include the G.C.E. 'O' level. Here, too, fees will be much lower than they were last year.

The picture of the effort which we are making would not be complete if I was not permitted to speak of our hopes for the future. I refer here in particular to the University of Zambia. When the University is established next year we hope that it will cater for external candidates both by part-time and evening classes and also by devising courses of lectures for correspondence students. We hope, too, that the University will develop and maintain personal contacts with its external students in order to ensure that these students share in the academic and social spirit of the university.

From what I have said I hope that the conference realises that we are determined not only to expand the educational system but to expand within it the facilities available for the education of adults. When I say that there are at least one and a half million people in this country beyond school age, and of these only come 40,000 have received a full primary education, the conference will, I am sure, understand the magnitude of the problem which we are setting ourselves to solve. This brings me naturally to the subject of this Conference which is "The Use of Mass Media in the Education of Adults".

I attach a great deal of significance to this conference because I realise only too well that the present methods of classroom teaching Africa are by no means perfect. Not only is classroom education inadequate in certain respects, but all over Africa there is a serious, nay critical, shortage of teachers. In these circumstances, it behoves us to pursue with vigour the possibility that in the rapidly emerging body of knowledge about new techniques of mass media there may lie the prospect that through these techniques we shall be able in the future to educate more quickly and efficiently, and to produce a system of education superior to any that Africa has known before.

A politician has been defined as a man who is licensed to comment on what he may not know about. Mr. Chairman, I hope that the conference will, in the spirit of this generous definition, allow me to make a few comments on this highly specialised subject of mass media in education, because it is a subject with which I have, for some time now, been preoccupied. As I see it, this subject in the field of education covers the use of the printed word, sound motion pictures, the film strip, various forms of television and radio and demonstration devices of various kinds. It is relevant to your conference this week that more and more newspapers all over Africa are being produced and printed than ever before, and broadcasting systems are realising the vital role that television and radio can play in education. The methods and techniques which you are going to examine have, in all probability, been tried elsewhere before. You and I know however, that ready as the answers may appear to be, there is not only in Zambia but in the rest of Africa, an entirely new situation.

It is the recognition and resolution of the hard facts of reality which will render the conference of practical importance; I feel confident that with such a wide cross-section of experience concentrated in this conference these hard facts will be faced. For instance, it is unnecessary for me, I am sure, to remind the delegates, most of whom are from Africa, of the financial difficulties which limit drastically the execution of well meant programmes.

Educational attainments are spread unevenly throughout the whole adult population. In Zambia, for example, five hundred thousand people out of a total of one and a half million adults have been to school and, only approximately 40,000 of these have received a full primary education. Therefore, at which section of this largely illiterate community is mass media to be aimed?

Another problem is language. There are in Africa today hundreds, if not thousands, of different languages and tongues. To quote the most extreme conditions, there are in this country no less than 80 different languages for a population of three and a half million. This, of course, does not mean that we have to work in 80 languages, but most of the adult population can only be reached effectively in their own language and only to a lesser extent can they be reached through one of the four official vernacular languages. How are these people to be educated?

These are difficult questions but I am confident that you will find the answers. You have in your midst men and women from many walks of life; there are teachers of adults, doctors concerned with health education, agricultural officers who are trying to introduce new ways of farming, as well as broadcasters and journalists who are building up channels of communications. Surely, in your discussions, it should be possible to list many of the fields in which knowledge and understanding need to be communicated. You will enlighten each other on the way the printed word, film and radio and television can help in the important process of learning. You will also take into account the physical, technical and psychological aspects of the question.

For our part we shall await the findings of your conference with great interest.

Before I close it would be wrong of me not to mention the two main mining groups of Zambia, the Anglo American Corporation and the Roan Selection Trust. It is through their generosity that this conference is being held. These two mining groups are great benefactors to Zambia in a number of ways and I would like to take this opportunity of thanking them for so generously arranging the financing of this conference. I would like to thank too, the board of Governors of the Evelyn Hone College of Further Education who have supported the Principal of the College and your Chairman this morning, Mr. Noak in the sponsoring of this conference.

I know that both the Principal and your Chairman have worked hard to make this conference the success which I am sure it will be. This College has recently been renamed the Evelyn Hone College of Further Education in grateful appreciation of the last Governor of Northern Rhodesia and as this is the first time I have visited the College since it was renamed, I would like to record my pleasure that it is now the Evelyn Hone College of Further Education.

Ladies and Gentlemen, I now have much pleasure in declaring this conference open and I trust that you will severally and jointly obtain benefit from it.

summing up of conference :

At this Conference we have examined four Mass Media; Film Radio, Television and the Printed Word. We started our discussions by looking at the media separately, but the work in the study groups led us to a new approach to teaching, a new concept : using existing resources, we must combine two or more media to form a series of instructional systems, each designed for a specific educational purpose. These systems can involve radio and television programmes, correspondence lessons, supplementary reading or practical work, group tasks and face to face contact with tutors.

We took a closer look at the learning process and found that facts and new ideas are learnt better if the information comes to us through different senses, the ears, the eyes; through written materials, pictures and sound, each channel doing that which is most appropriate to it. The teacher, the Printed Word, Radio, Television and Film can thus be used to reinforce each other.

We learnt, too, that a student makes new knowledge his own only when he responds in some way, does something himself and does it right. This need for response from the student is known to every teacher. His problem is how to elicit the response. In this new approach to teaching, properly organised, each student does participate actively in the learning process.

Another facet of this new approach to teaching adults is that we are able to marshall much greater resources of man power and time. We can bring together teams of the best teachers we can find, back them up with experts and technicians. We can spend time and money to perfect each lesson, revising, improving, until we have a near perfect product.

How can we combine these three concepts:

Learning with eyes and ears,

Active student response,

Utilising scarce teaching resources to the country's greatest advantage.

We must design instructional systems to meet specific needs. In correspondence education with its great flexibility of approach we can bring these ideas together effectively in many forms. Correspondence Courses can be supported by radio and television, by recordings on tape and by films. By using self-administered tests the student makes the maximum number of responses as he goes from one step to the next. All these elements can become components in a planned total teaching approach.

Correspondence courses can be designed to meet many needs:

To teach academic subjects,

To teach skills,

To provide a substitute for the missing teacher in understaffed schools.

In Zambia today only very few adults can take part in full time education and training. They must be kept working in their jobs as teachers, extension workers, railway men, road engineers, etc. Many cannot even attend evening classes. How are they to learn new things, to become more useful in their jobs, earn more money and help in the development of this country? Continuous participation in correspondence courses, complemented by radio, may well provide the answer in a nation wide programme of In-service training.

We as educators are concerned to do the best for our students to bring the resources of the Mass Media to their aid. To do this requires co-ordinating machinery to produce integrated instructional systems for many purposes. Teachers, Radio Producers, Television Directors, etc. have to work together as a team. They are educating not entertaining. Therefore the educationalist must be in charge. He must be a man of vision, able to understand the educational problems as well as the technical problems. In any instructional system the role of the teacher in the field is of paramount importance, far from being eliminated he has an ever more important role to play.

This then is the background against which we must place the findings of the Conference Study Groups. Very briefly this is what they have to say:-

Radio and Television.

For formal education, radio and television can provide excellent complementary material and can serve as a continuous stimulus to students working on their own.

In informal education, group listening and viewing with a leader supported by other materials is the most effective way of exploiting the media.

Radio and/or Television in Correspondence Education.

An instructional system, using radio and/or Television alongside correspondence course material, source books, tutorial guidance and occasional group seminars, has proved to be a most effective method of educating adults.

Correspondence Education.

Correspondence Education, of the kind discussed in the conference, can make the most significant contribution towards the education of adults. One Correspondence Unit, operating on a national scale should be set up in each country. It should provide a service to all agencies, such as the Ministry of Education, Agricultural Extension Services, the University etc., who have to educate external students or provide for in-service training of their members. It must command facilities for the holding of residential courses. It must be set up and run by a person with appropriate experience.

Film.

There is need for a National Film Council to collect and disseminate information about films, to serve as co-ordinating and advisory body to film makers.

Films are most effective when presented to special interest groups and used as an aid to the teacher or group leader.

The Printed Word.

Literacy Campaigns should be planned in relation to the interests of the community. There is urgent need for the production of further reading materials of all kinds, carefully prepared by trained personnel with time to do the job properly.

Evaluation.

New methods must be used, alternatives tried out. A system of evaluation must be built into these experiments. The evaluators must be competent and independent.

The control of the mass media is an important issue in relation to the subject of this conference. The B.B.C. film "Television and the World" was shown to the members of the conference and an invited audience of 200 guests. Among them was the President, Dr. Kaunda and members of his Cabinet. The film made a deep impression on all who saw it.

Educating adults is a major task in all the countries here represented. The men and women engaged in this task need help, encouragement and up-to-date knowledge. To this end we have formed in this conference 'THE ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA' to promote the interests of adult education in this area.

To sum up. Teaching to be effective requires much costly preparation. The operation of the mass media can be very expensive, but with their help the total cost is spread over thousands of students which can now be reached simultaneously. The cost per student is low, lower in fact than conventional classroom teaching. To achieve these economies is it necessary to plan from the start for a large student enrolment.

In educating adults we are educating individual men and women who want to learn. Our unit of measurement therefore must be the individual student. We must relate the cost of educating him to the educational opportunity which we are giving him and the service which he will be able to render the nation.

Hans Noak
Chairman.

conference resolutions:

## A - A CORRESPONDENCE UNIT.

Resolution:

> "The Conference recognises the value of correspondence education conceived as an integrated instructional system, and urges that each country should set up appropriate facilities for providing correspondence courses for adults and to supplement school education on a non-profit making basis. The written materials of the courses should be supplemented with other aids to learning, such as radio, to provide a fully integrated system of instruction."
>
> carried unanimously.
>
> (For further details see Study Group Report 'Correspondence Education' below).

## B - A NATIONAL FILM COUNCIL.

Resolution:

> "This conference urges that in the countries here represented National Film Councils be established to meet the needs and having the functions set out in the accompanying document."
>
> carried unanimously.

### THE SETTING UP OF A NATIONAL FILM COUNCIL

1. Films are used today by many adult educators working in such fields as health education, agricultural extension, and formal adult education. These personnel work in isolation from each other and frequently lack adequate information about films available to them in the country. There exist in most African countries several film libraries from which users may borrow free of charge, for example Ministry of Education, Ministry of Information, U.S. Information Service, Shell Film Library, Anglo American Corporation, British Information Service.

> The Need. To publish information about all the films from all the sources in each subject field. The publication should contain information about the source of the film, its contents and an assessment of its value for specific groups in the country.

2. Not only do users of films lack information above available films but also lack training in effective methods of use. Much time is wasted by inadequate techniques and misuse of valuable material.

> The Need. To set up a national body equipped to undertake training of film users working in the whole field of adult education.

3. Many of the agencies distributing films lack adequate information on what are the best films to purchase from abroad in order to extend the range of their own collections.

> The Need. To set up an agency to serve as a clearing house for information on new films from world sources and as an advisory body.

4. In most countries both government departments and local industries are engaging in production of films. These activities would be much more successful if full information were readily available on existing films on any subject and production plans of all agencies could be co-ordinated.

> The Need. To set up a co-ordinating body which could assemble information, serve as a liaison between sponsoring departments or industries and help to determine priorities.

5. Many films produced locally at the present time are not as effective as they might be because of the lack of consultation during the planning stages, between users and film producers.

> The Need. To set up a body to encourage close, active liaison between users, educational planners, sponsoring departments and producers.

## THE NATIONAL FILM COUNCIL

This conference therefore urges that a national film council should be set up in each country. These councils should have national status and should be set up under the aegis of an authoritative educational body. Such as a University. The council should be representative of users, distributors, and film makers. It should have a budget adequate to its activities and appropriate permanent staff.

Functions.

1. To collect and disseminate information about films already available from libraries in the country. The information should include details about contents of the films and some assessment

of their value for specific users. In order to arrive at a balanced judgment, appraisal panels should be set up to view films, working to a standard procedure. The findings of the panels should be collated and prepared for publication by the National Film Council in a standardized format, useable throughout African countries.

2. To provide training courses for field workers and arrange conferences on the application of films to education.

3. To act as a clearing house of information and to advise film libraries on the suitability of specific films for purchase.

4. To serve as a co-ordinating and advisory body to film makers with the specific task of co-ordinating production plans of various sponsoring bodies and to provide the liaison between sponsors and users.

5. To promote contact between countries with like problems by means of regular exchange of documents and materials and by arranging meetings of personnel engaged on similar activities.

(For further details see Group Report 'Film' below).

lecture: RADIO AND TELEVISION IN CORRESPONDENCE EDUCATION.

Homer Kempfer, Chief, Eastern/Southern Branch,
Education Division, Bureau for Africa,
Agency for International Development,
Washington, D.C., U.S.A.

## Instructional Systems

A recent development in American education is the growth in establishment of instructional systems. An instructional system combines two or more existing educational approaches, methods, or techniques into an integrated pattern designed to achieve a specified educational purpose. The idea is not new. Educators have long combined such methods as the lecture, small group discussions and individual conferences. The rate of expansion growing out of the possibilities of using a number of new technologies is the major achievement.

Examples are:

- Classroom instruction combined with radio or T.V. instruction.
- Classroom instruction combined with programmed instruction.
- Correspondence with programme instruction and short resident terms.
- Closed-circuit T.V. in classrooms, programmed instruction, small group tutorials and individual counseling.
- Machine teaching with any number of other methods.
- T.V. or radio with correspondence instruction and short periods on campus.

What combinations are most practicable? A great many other combinations are both possible and advantageous.

A new university in Florida has been built around a new kind of library:-

- a stock of video-tapes for its closed circuit T.V;
- hundreds of sets of programmed instructional materials including programmed textbooks; and
- hundreds of tape recordings of academic lectures and discussions, of laboratory tapes and of music.

Students in their dormitory rooms can select for study any of several scheduled closed-circuit T.V. programmes going on throughout the day and evening. They can dial any of hundreds of tape records and hear them over small speakers or headphones. In their rooms they have small teaching machines which can be used with many of the available programmes. Specialized teaching machines, such as language laboratories, can be used in other central rooms.

A College. Three months ago I visited Delta College in Michigan which operates four closed-circuits T.V. channels from 8. a.m. to 10 p.m. daily with programme changes hourly. A library of all available programmed instruction materials is used extensively to take care of individual differences and deficiencies. Professorial time released by T.V. teaching allows many more small group and individual contacts with its 2,000 students. The T.V. saves the salaries of four instructors whose pay is enough to support the T.V. center. This is important when you realise that we are so very short of qualified teachers especially in higher education that we have been importing them from the U.K. and elsewhere for years.

Evening classes enroll another 2,000. Open T.V. programmed instruction, and directed reading programmes serve the adult community unable to attend classes.

A Junior College. In one large city the first two years of college are given largely by television combined with short visits to the campus and correspondence study. Thousands of employed people can pursue their college education in the evening without wasting valuable time and energy in constant cross-city transportation.

Computers. Another rich possibility lies in the skyrocketing development of computer technology. A few years ago a Midwestern university built Pluto, a teaching computer, which can carry the total secondary school curriculum in programmed instruction form. Its capacity was 8,000 students at a time. Each student could study any lesson in any subject. In responding to questions and problems in the programme, no student would have to wait more than two seconds for confirmation of his answer.

I am told that it is now entirely possible to build a computer to handle all subjects of any year of school and allow every student in the United States to use the machine simultaneously. The possibilities of combining computers with programmed instruction are fantastic. Limitations are primarily in programme building.

But let us turn to two systems which offer very practical opportunities for expanding education rapidly at relatively little cost. Let us first consider correspondence instruction alone.

### What can be learned by correspondence?

**Anything that can be learned from the printed page can be learned by correspondence instruction.**

The above is an understatement because correspondence instruction is not limited to the printed page. It can include any instructional materials that can be shipped through the postal system. We have correspondence schools that teach watch repairing, upholstery, radio and T.V. repair, camera repair, refrigeration, air conditioning and such subjects by mailing out kits of tools and equipment along with printed instructional materials. Students work with the materials, learn and return real samples for evaluation, marking and further instructional assistance.

### What are the advantages and limitations of correspondence instruction?

1. **Best method for many subjects.** Individual tutoring has long been the ideal of educators. A great many subjects require individual learning which can often best be done by students working alone. Reading itself is usually a solitary activity. For these subjects conventional classroom instruction is often actually wasteful.

Correspondence establishes a one-to-one student-teacher relationship. Instruction is individual. The method works especially well with such subjects as creative and business writing, the fine and commercial arts, accounting, law, and, in fact, in most academic subjects. Many of them can indeed best be taught by correspondence.

The high degree of quality control with correspondence instructional materials and with the method itself can almost never be equalled in classroom instruction. In classrooms teachers are free to come well prepared or not, to improvise, or to muddle through. Correspondence as a method does not encourage sloppiness. Writing maketh an exact man. I am positive that much of the best instructional materials in the world have been prepared by correspondence educators.

If instructional materials are adequate, most of the personal manipulative skill subjects such as typewriting, mechanical drawing and drafting, sewing, crafts, shop and trade skills can be learned very well by correspondence.

Many vocational educators think that the only way to teach skills is through teacher demonstration and return student demonstration.

A major regulatory agency in the U.S.A., however, after studying the evidence, concluded that the demonstration method is only one way of teaching skills. They can also be learned by following written instructions as in a correspondence course. And certainly many skills can be taught by T.V. Our medical schools even use T.V. to teach surgery.

Theoretical and informational parts of subjects are quite teachable by correspondence. However, when big or complex machines or expensive laboratory and shop apparatus are necessary it may be necessary to supplement correspondence instruction by periods of assembled instruction.

Often subject matter can be divided so that the information and theory can be taught by correspondence and the practical application concentrated into short resident periods. Many experiments in science projects, of course, can be carried on individually by mail with instructional kits.

Although the first correspondence instruction over 100 years was in languages, it is generally recognised that oral command of foreign languages becomes difficult by this method without audio aids - disc or tape recordings, radio or T.V.

Weaknesses. Correspondence instruction is weakest in those areas which absolutely require group or concert participation. The skills of conversation, teamwork, group discussion, group leadership and oral persuasion must be learned in actual group situations although the theory can be learned by correspondence. Group dynamics and human sensitivities are best learned in interpersonal situations. Polite behaviour and certain elements of personality development come easiest in groups although they need not necessarily be school groups.

Musical skills can be learned by correspondence if audio aids are used as standard-setting supplements. However, individual vocal and instrumental abilities can be combined effectively only in group practice.

The limitations of the correspondence method are largely the imagination and ingenuity of the people who prepare the instructional materials. The subject possibilities are wide indeed in the hands of a competent educational materials expert.

Correspondence is usable at all educational levels above illiteracy. Literacy itself can be taught by correspondence if instructions go to a literate friend of the illiterate. Australia, Canada and New Zealand make extensive use of correspondence instruction in all the primary grades by starting with instructions to the mothers.

**Can not people learn better in groups?**

When used alone correspondence instruction depends heavily upon individual internal motivation. Only motivated students will succeed by this method. Correspondence instruction has characteristic non-start and drop-out rates. Instructors never have to work with unmotivated students. Correspondence instruction is essentially an adult way of learning.

Guidance and inspiration of the unmotivated, however, is difficult by correspondence. Many students need the morale-building influence of groups. This can often be supplied by the use of study groups or short on-campus terms. In fact, several university correspondence programmes insist on occasional resident periods but not chiefly for morale purposes. The arts and skills which cannot be taught well by correspondence are provided in suitable group activity on campus. Campus periods also offer laboratory, shop and leadership activity and help develop personality.

**Can weaknesses be overcome?**

Aside from being unable to teach a certain few subjects the major limitation of correspondence instruction lies in the time lapse between student response and its confirmation - feedback. From psychology we know that learning is most effective if the learner finds out quickly whether or not he has responded correctly. Often several days and even weeks lapse before corrected correspondence lessons are returned. However, this may not compare unfavourably with the time lapse on exercise, themes, and other written papers handed to resident instructors.

Good correspondence courses have long sought to provide *immediate feedback* on much of the material being taught. Correspondence educators are the acknowledged practical forerunners of modern programmed instruction. Good correspondence courses today provide from 75 to 90 per cent immediate feedback through selfcheck exercises so that skill and knowledge fixation can be immediate and effective.

**How flexible is correspondence instruction?**

2. *Flexibility*

   a. *Time*. Under most circumstances correspondence instruction is organised so that study can begin at any time. There is no need to wait for new school terms to start. Instruction can be pursued at any time of the day or night. Vacation time and weekends can be used profitably. The student does not need to subject himself to any outside schedule. He is his own master although there are situations where an externally-imposed schedule may be advisable or even necessary.

Some programmes, especially those set up by former classroom educators, require all students to start at a specified time and keep on schedule. This practice often reflects attitudes held over from classroom institutions in which such behaviour was necessary. It may be administratively easier to operate such a schedule although it may create peak-and-valley work loads.

b. Rate. Each student can progress at his own rate according to available time and ability. The able are not held back by sluggards. The slow can have all the time they need.

c. Place. Correspondence study can take place anywhere - at home, under a tree, in hotel rooms, or while travelling. Travelling time to school is eliminated along with the cost. All available time can be spent in study.

These advantages enable education to be extended to much larger population groups than can classroom instruction. The employed unable to attend day or night classes, widely scattered workers, housewives tied down with families, the crippled and homebound, the travelling man, children too young to go away to school, and many more groups can pursue correspondence study successfully. Possibly its main virtue is that it enables working people to acquire higher educational qualifications without loss of income. This is particularly important in developing countries where the services of partly qualified people are often badly needed. They can earn and contribute to national development while they learn.

How much does a correspondence study system cost?

3. Economy. Correspondence instruction is one of the most economical approaches to education. Units with very small enrolments such as here in the College of Further Education usually run a high per-pupil cost. When enrolments run upward from 1,000 or 5,000 per course, costs drop rapidly. In schools enrolling 2,000 to 10,000 per capita costs can run as low as one-half to one-tenth of the equivalent instruction in classrooms. In the U.S.A. a person can obtain all the instruction needed to qualify as a Professional Engineer at about one-seventh the cost of four years of engineering college. I believe the same is true in Sweden. Complete accountancy training can be had for about £125 or about 1/25th the cost of a college education. A complete secondary education including textbooks can be obtained for £70.

All of this economy is made possible by large enrolments.

The major money in correspondence education should be invested in preparation of materials. Once they are prepared and tested, further improvements should take relatively little time. Correction services in many of our better schools with well-designed lessons runs about 10 per cent of the total budget.

As enrolments rise, correspondence instruction brings the advantage of mass production. Course preparation costs about the same whether for 50, 500 or 50,000 students. Reproduction of materials, instructional services, postage and much overhead is rather directly related to numbers enrolled. Thus, if one is to take full advantage of economics, it is important to prepare courses first in areas having a large enrolment potential and to enroll as many as can qualify. Great legitimate savings can be made in the non-instructional elements while still maintaining high quality individual teacher-student relationships.

Notions of restricitions on enrolment impress me as being held-over thinking of traditional educators used to conventional teacher-classroom ratios. As long as qualified candidates are available, we should avoid such restrictions, especially in developing countries. After initial lessons are prepared, each additional student enrolled costs comparatively little.

If instructional materials are well designed, one instructor can handle three to five times as many students as she could in classrooms. Much of the non-instructional work can be handled by clerks thereby saving precious trained manpower.

Additional savings, of course, come in building costs. Fewer school buildings are necessary. Students furnish their own study space. Headquarters buildings need not be expensive. As material preparation lesson correction are largely silent activities there is no need for individual offices for instructors. Instructors are usually housed in one large room. Part-time instructors can take their work home.

How can correspondence instruction combine with other media?

### 4. Ability to fit into instructional systems.

While correspondence instruction has many merits of its own, it is extremely easy to combine with other educational approaches and methods.

a. In Scandinavian countries correspondence courses provide backbone of weekly discussion groups usually led by volunteer leaders. Either individual or group assignments are returned to the Instructional Center.

b. Correspondence instruction can carry a significant load of instruction when supervised and built into the fabric of local schools.

**How can correspondence study be combined with classroom instruction?**

Over 1,000 secondary schools in our country use supervised correspondence study. Scandinavian and other countries also use it in similar ways. The local school serves primarily as a supervisory agency for local students somewhat as follows:

**Correspondence Instruction Center**

← Enrolments
Instructionsl Materials →
← Completed Assignments
Corrected Assignments →

**Local Secondary School**

Correspondence Instruction Center:

Prepares self-instructional correspondence courses.

Determines admission qualifications.

Promotes enrolment.

Provides instructional materials.

Corrects assignments submitted.

Prepares exams and evaluates completed exams.

Certifies completion of course.

Keeps records.

Local Secondary School:

Enrols students in courses not available locally or for which no teacher is available.

Receives instructional materials from Correspondence Center; distributes to students; provides study space but no instruction.

Collects and completes assignments from students, forwards to Correspondence Center.

Receives corrected assignments and redistributes to students.

Provides laboratory and shop facilities as necessary.

Administers exams provided by Center.

Local Secondary School
(Contd.)

Incorporates correspondence courses into sequence for diploma.

Keeps records.

While our secondary schools use supervised correspondence study primarily for providing special courses and taking care of individual differences, it also is used to provide instruction for class-size groups where no qualified teacher is available. If necessary it can take care of the major instructional load. It is especially useful in schools too small to be completely staffed. You will note that the work is under the supervision of regular school authorities although the instruction is done by qualified teachers at the Center.

Local instructors can correct the lessons, if qualified, although they probably would not be as efficient as teachers at the Center. Center instructors are able to maintain both high quality control and high efficiency.

### How can T.V. and radio be integrated with correspondence education?

c. Correspondence instruction can be integrated effectively with radio and T.V. The broadcast media add sound and T.V. adds motion which is usually impossible by correspondence. The primary handicap is that the broadcast media usually require large audiences and are unavailable to audiences of 50 or 100 students. Closed-circuit T.V. of course, can be used with small groups. Consequently, radio-correspondence or T.V.-correspondence courses can be planned only for the most popular courses or to provide education to comparatively large population segments. If appropriately planned, much of the broadcast can be of benefit to a more general audience much larger than the number formally enrolled.

English language, upper primary, secondary and certain adult education subjects might be most practical by radio or T.V. and correspondence in African countries.

There are undoubtedly other possibilities into which correspondence instruction can fit.

## Dream for Africa

Let us turn to some dreams for Africa to see if they might be practical.

**What is the need?**

**Classroom and teacher shortage.**

Most African countries have too few classrooms, teachers, and conventional educational facilities to achieve their educational targets in the short time necessary. Teacher training and classroom construction by traditional methods are too slow and costly. Native resources and foreseeable foreign assistance combined are not great enough to accomplish the desired educational task.

Out of this situation a feeling has grown that a breakthrough in educational approach would have to be tried. If these countries were to achieve their educational goals quickly, they would have to break beyond the conventional classroom-teacher approach to education. Possibly the new technologies would offer a way.

Consequently a team of experts spent some weeks in East Africa last year inquiring into the possibilities of combining some of the newer media and other approaches to solve the problem. They thought they saw a lot of apportunity for using modern technologies and approaches in both adult and youth education. Some of the African leaders see rather clearly that the task of nation building is essentially one of moving the entire population forward by means of education.

I would like to outline a specific project on which we expect to help in Tanzania, beginning this year.

**Will the Tanzania project work?**

**Teacher Training.**

Tanzania has about 9,500 primary teachers with eight years of primary schooling plus two years of teacher training. Its Five-Year Plan calls for these teachers to be upgraded or replaced by better trained teachers by 1969. Those who upgrade themselves to Cambridge School Certificate level can more than double their salaries. Upgrading and salary increases are the incentives.

One key to upgrading these teachers is their knowledge of English. Most of them studied English in the upper four years of primary school. English medium was used in their teacher-training course. Presumably their English competence is about that of students in Form I.

English is important because the Government has decreed that English shall be introduced in the Third Standard instead of the Fifth. It expects English to become the language of instruction by the Sixth Standard. It wishes to introduce English in Standard One but cannot do so now because of inadequately trained teachers.

Command of English is also the key to mastery of other secondary subjects.

## Radio-Correspondence Group Practice.

The Ministry of Education has decided that a good way to approach this problem is by means of a combined radio-correspondence course in English combined with group practice. We agreed and expect to help them mount the programme this year. We expect to start with an experimental-demonstration group of 1,000 teachers within 150 miles of Dar-es-Salaam where radio reception is best. Some primary schools have radios, and we will place transistor sets in others.

We hope to broadcast oral English practice exercises immediately after the close of primary school three to five days per week. These will be prepared, tried out, revised and taped for radio use. We expect from four to ten primary teachers to gather around each radio and go through the oral practice exercises under their own leadership. British English will be used.

Correspondence lessons will be prepared in advance of the broadcasts. Probably a whole term's work will be sent out in advance. Most of the material will be self-checking or programmed so that the teachers can know immediately how well they are learning. Lessons will be sent in for evaluation, correction and feedback about every three weeks.

The project planners have a number of ideas for maintaining interest and strengthening instruction. They include the use of a mobile transmitter to bring in fresh and immediate participation from the field and use of various audio-visual aids.

The experimental design will provide for continuous assessment of growth in English competence of one or more experimental and control groups beyond the 150 mile radius. The experiment is set up for two years to see how much can be accomplished in that time. If it works as well as we expect, it should be the forerunner of an expanded programme.

## Will it work on other secondary subjects?

After English, the next subject to be included in the above project is secondary school social studies. If that succeeds, the road should be clear for preparing tapes and correspondence lessons for all remaining subjects in Forms I through IV. Primary teachers with sufficient persistence could presumably qualify for and pass the Cambridge School Certificate Examinations as rapidly as their abilities permitted - without losing any time from teaching.

As science in the Cambridge system requires a certain amount of laboratory experience, it is likely that vacation-period classes will have to be set up at equipped schools. Qualified instructors and students can work together on the required laboratory exercises. The necessary knowledge can be learned in advance or concurrently by correspondence.

Once the secondary curriculum is prepared for use by radio and correspondence for [illegible]chers, it should be equally usable by other population segments. Many youth who pass the primary examinations are unable to get secondary school seats. Certainly a sizable fraction of them could pursue secondary education by this method.

In December, Kenya, for example, produced 125,000 primary school leavers. Possibly 6,000 can get into secondary schools this month. Kenya and most other countries need a much larger secondary certificate crop than will be turned out from available classrooms. Possibly fifteen or twenty thousand or more in Kenya could be enrolled if this radio-correspondence system were ready.

The backlog of government and private workers with only primary or partial secondary education is another group needing educational opportunity. Some can go to night school but many cannot. Thousands could qualify annually for the Junior Certificate, the School Certificate, the G.C.E., or Higher School Certificate where that is a prerequisite for college.

Once the materials are on tape and in correspondence form, they can be used by other countries using the same examining system with only minor adaptation. Sections on national government and history might have to be re-written, but most other material would require very little modification. The new system would only have to be installed in the adopting countries to become a part of the educational system.

### Occupational Training.

A very wide field is occupational training. This is the most popular field served by correspondence schools in the U.S.A. Because the range of subjects is so great, it is likely that radio or T.V. could be used with only a few courses of wide appeal. Business training, accounting, certain agricultural courses, and homemaking might have sufficient appeal to justify the broadcasting media. Inexpensive short courses in child care, health, citizenship, economics, specialized agriculture, business letter writing, and similar subjects might enroll considerable numbers.

### What type of international co-operation can be arranged?

### Opportunities for International Co-operation.

As mentioned above, courses developed at one center are usable in other countries using the same examining system. Likewise, courses in occupational training could easily cross international boundaries. All it takes is co-operation. Each country might want its own Instructional Center but the expenses of course could probably be shared. Instead of paying for courses, maybe the work could be divided up with each country producing certain courses.

At the higher education level the University of East Africa already is a usable mechanism wherein one correspondence department could both produce and service most of the university level courses for the three countries. Certainly there is no need to have three university correspondence centers when one could operate much less expensively.

### In-School Use

Let us add to this picture a bit more. Let us examine three possibilities of radio and T.V. combined with correspondence and programmed instruction. I have been assuming, of course, that all correspondence materials would contain a considerable load of programmed content.

1. In-Class use. Radio and T.V. could be used not to enrich or supplement the classroom instruction, as is often true now, but in many subjects it could carry the major burden of instruction. Research and experience have both shown that in many subjects certain kinds of teaching can be done as successfully by T.V. as by a teacher in a classroom.

One master teacher need not limit his talents to one classroom when others are without qualified instructors or are crying for better ones. He can present carefully prepared lessons by tape and video-tape for the schools of a whole nation - or several nations. All children and youth following the same syllabus can have good teaching. Obviously all schools would have to synchronize their terms and daily schedules.

One important by-product of a master teacher appearing on radio or T.V. is the improvement in the other teachers. When they see good teaching, they tend to imitate.

How can secondary enrolment be expanded?

2. Supervised correspondence study. This plan mentioned earlier enables a school to handle more students than it could purely in classrooms. For instance, in Kenya we worked out a plan whereby a fully-staffed school could enrol 50 per cent more students than normal student-teacher ratios would allow provided classroom space were available. All students would take one-third of their work by correspondence which of course, would be combined with T.V. or radio wherever facilities were available.

Or a single-stream four-year school, needing six teachers but having only four, could enrol at full strength by allowing its students to take one-third of their work by radio/T.V./correspondence. In effect these plans would allow a 50 per cent larger enrolment in present secondary schools with present staffs. The increase in correspondence instructors should be relatively small.

3. Extra-mural students. Wherever adult education centers are set up, correspondence courses can be offered with service from the Instructional Center. Those who cannot attend evening classes or cannot find the course desired, can enrol in correspondence courses. Courses with large enrolments can be supported by radio or T.V. at appropriate hours. The adult center itself could have a listening or viewing room. Other community viewing or listening points could be established at convenient places.

Is decentralised registration practical? Registration points for correspondence courses could be widely established at convenient centers. Every secondary headmaster, every education officer and possibly even primary school heads could be the local registration and administration points for correspondence courses. Conceivably every post office could be a registration point although I can understand the unwillingness of educators to delegate their authority to clerks. However, maybe post offices could disseminate the printed information, accept registrations, and forward them to the Correspondence Center for review and acceptance or rejection.

Every youth who passes the primary examination should have a chance to enrol in secondary courses. Undoubtedly any weaker ones will fall by the wayside, but if instructional materials are good, many will acquire a higher educational qualification.

Once registration points are agreed upon and established, radio and T.V. could be used, along with other media, to promote interest and registration.

In-Service Training. A developing country needs to have its cake and eat it too. Radio/T.V. correspondence education and other extra-mural approaches enable it to do so. A fast-growing country cannot afford the luxury of years of education of its young adults before they enter the workforce. Work and learning must run parallel. Long years of schooling with wasteful/holidays periods make little sense when services of even partly trained people are so sorely needed on the front lines of development.

Full-time work experience combined with job-related instruction in information and theory make the best possible learning situation. Workers usually are much nearer the teachable moment than are students. Application can often be immediate. They can apply tomorrow what they learn tonight. Artificial exercises for students give way to real problems on the job. This is why no person can become a Professional Engineer in the U.S.A. without at least four years of successively-advanced practical experience.

Thus we see the need, the importance, and the opportunities for in-service or on-the-job training. Consequently we can expect to find many government bureaus with large cadres of widely scattered employees using correspondence, programmed instruction, radio, and T.V. and many other media and methods for upgrading and refresher training. Agricultural officers, teachers, road builders, police, tax officers, custom officials, postal employees health workers and the armed forces most often take such courses. Practically every branch of our armed forces operates its own correspondence department for occupational training within the service. Norway requires every man in its military establishment to take either a resident or a correspondence course.

In-service training is even more extensive in private business and industry. Seven years ago a study showed that our largest corporations were spending more on employee training than the combined budgets of all our universities. Employee training is probably the fastest growing segment of our educational system. In a fast changing world, rapid technological developments force a fierce competition. Only through continual training of employees can a business or industrial enterprise keep up.

## The Future

What is all this leading to?

The new combinations of approaches and methods will mean a redesigning of our educational systems. Instead of depending almost entirely upon teachers in classrooms, we will be developing a multiplicity of instructional systems. Each will be especially designed to accomplish its purpose within the prevailing geographic educational and cultural conditions.

The old system of boarding and day classes has its strengths but also its limitations. It is costly, slow and often is not available to great numbers. Certainly most adults employed in agriculture, industry and homemaking cannot attend school. Some of the extra-mural approaches and the new technologies take education to the people. Some are less expensive and more effective. A nation seeking to upgrade its educational system must inevitably look to such ideas as these.

Education has ceased to be a matter only for children and youth. In advanced countries systems of continuing education for the total population are arising. Science, technology, politics, economics, medicine, and many other fields of human endeavour are developing so fast and bringing such changes that education received in childhood can no longer suffice throughout life. Adults need continuing education to keep up with the emerging world as well as to create and control it.

Developing nations cannot afford to neglect their adults. Raising up a generation of educated children requires 30 years or so and the developing countries are not going to wait that long. The assumption of waiting on a new generation is patently weak and false anyway.

### On what population group should we focus?

Young adults starting their careers and families are the best hope of a nation. They are mature to the point of being able to learn much faster than children. They are likely to be highly motivated. They are much nearer to the time of assuming control of leadership than are children. They have long periods of contribution to nation building. In times demanding trained manpower, social dividends are greatest on educational investments in young adults.

Much of the instruction in educational systems of the future will be done by the newer technologies. Films, radio, open and closed-circuit T.V. programmed instruction, computers and various audio-visual aids will play a major role with many adaptations and combinations.

If you do not think this is already happening, consider these facts:-

Practically all African countries have near universal coverage by national radio system.

Uganda within this year expects to have 90 per cent coverage by T.V. - the first developing country to have such extensive coverage. The chief problems are getting enough sets and training enough programme producers. Within a very few years a significant part of all primary, secondary and adult education in Uganda could be conducted by T.V.

Kenya could reach 40 per cent of its population right now by T.V. if sets were available.

Ethiopia last year started correspondence courses for upper secondary grades and hopes to add radio instruction soon.

Zambia likewise started a correspondence programme last year and already has tried limited T.V. in the Copperbelt secondary schools. A small closed-circuit T.V. experimental programme is also operating there under a special grant. It should be the starter for training programme producers for the schools and adult education programmes of this country if the Ministry of Education can continue the work.

Malawi is starting a correspondence programme and hopes later on to add radio.

Nigeria uses radio and correspondence education in some regions for teacher-training and other subjects.

The Ford Foundation may establish a small center in Nairobi for training workers in programmed instruction.

A programmed instruction workshop was held in Nigeria two years ago and the techniques are being spread through teacher-training institutions.

In Rhodesia two-thirds of all Africans studying secondary school subjects are doing so by correspondence.

The University of London has long awarded degrees based entirely upon external study which often included correspondence courses. A few other reputable universities around the world do likewise.

The new University of Zambia is expected to have a strong extra-mural department.

Several private correspondence schools enrol large numbers of students in African countries. One currently has 20,000 students enrolled in three East African countries alone. Certainly those numbers should indicate the need and interest of Africans in education and their willingness to pursue it. They should inspire the new public correspondence programmes to expand more rapidly.

Extra-mural approaches will include innovations in the use of apprentice training, block leader organisations, book mobiles, correspondence instruction, each-one-teach-one-systems, extension centers, film and tape libraries and exchanges, mobile or itinerant classrooms and laboratories, itinerant teachers, off-campus classes, on-the-job training, self-study courses, study circles, supervised correspondence study, training-within-industry, travelling libraries and many others.

The newer technologies and older extra-mural approaches will be combined in many ways to accomplish the total educational task that a nation faces. The systems will not jump full-blown from anyone's head. They will be developed piece by piece and some of the pieces are already being developed right here in Africa.

It behoves each of you to know your country, its educational problems, its culture and its aspirations. It equally behoves you to acquaint yourself as fully as possible with the widest possible means of meeting these aspirations.

The clas room-teacher heritage still has merit but it does not contain all of the answers. Innovations are being made and more need to be made. Who better than extra-mural directors and adult educators can innovate in this field?

study group report: RADIO AND TELEVISION IN CORRESPONDENCE STUDY.

How can radio and television be best integrated with correspondence study?

Should radio and television be supplemental only or can it carry a major portion of the instructional load?

There is enough evidence and experience to show that television and to a lesser extent radio could carry the major portion of instruction. Television is much stronger in this respect than radio.

In what instances or subjects could radio and television carry a significant portion of the subject matter?

Given there is a second programme for education, maximum use can be made of:

a) Radio - for languages - hearing the correct sounds.

b) T.V. for practical subjects where demonstrations are required.

There are correspondence courses in science which include the practical as well as the theoretical side. A certain amount can be learned from the printed page but in order to understand all aspects of science, students must go beyond the printed page. If one depended on the student to get his own materials, more often than not he would not do it, therefore kits are sent out to the student and he follows the instructions for the simpler experiments. In the United Kingdom certain firms are manufacturing kits for this type of work. Existing secondary schools should open up their laboratories and enrol correspondence students for 2 or 3 week practical courses during the vacations. This is being done in New Zealand for biology, chemistry and physics students

Under what circumstances can radio/television instructions be of interest to a much wider public (in addition to the enrolled students)?

Both radio and television can carry a great deal of general educational material on their normal networks and programmes can be planned that will be of use to students studying formally and also the general public. General programmes which are of use for correspondence courses can be recommended formally to the students. These can be used for popularising correspondence courses especially by advertising successes.

Can short radio/television correspondence courses be popularised (4 - 10 weekly broadcasts)?

Provided the correspondence organisation can carry the burden, then short courses can be very valuable. This presupposes that there is a national system of correspondence courses as it would be uneconomic to set up such organisations for short courses on their own. Short courses can also be used for the introducation of new developments and new thinking on subjects.

Do public and private correspondence programmes have any different roles to play? Is there room for both?

At the primary level and for the adult education programme, correspondence material must be locally orientated. Few local or international private correspondence schools have good material at this level, but at advanced level, especially in technical and other special fields, the private correspondence schools can command greater resources than Government.

Should there be selection of correspondence students?

In countries operating correspondence courses on a large scale, anyone who has reached the general level of education required for a particular course can enrol temporarily. For a small fee he is entitled to do two or three lessons. Only if he can do this work satisfactorily is he allowed to enrol in the proper course.

What educational needs can be met by correspondence education?

a) Scholars - A correspondence course in, say Geography, can be given at a school instead of providing the school with a specialist geography teacher, scarce teaching resources can be stretched by this method.

b) Adults - Persons unable to attend evening classes can educate themselves from the upper primary level to university by taking correspondence courses.

c) In-service training - Instead of bringing teachers and field workers at regular intervals to residential courses, they can be compelled, as part of their contract of work, to take part in a continuous correspondence course.

What integrated instructional system is suited to provide:

a) General academic up-grading for adults.

b) Non-academic educational opportunities for adults (i.e. occupational training, national affairs, agriculture, etc.)

a) Academic subjects can best be learnt through a combination of correspondence material (which provides the teaching material) and Radio/Television which brings the student into contact with the expert teacher.

b) For non-academic subjects radio can provide a high quality stimulus. Publication centres can provide printed explanations and questionaires to supplement the programme and schools, community centres and adult education centres can provide the facilities for listening groups to meet.

## The Co-ordination of Channels of Communication.

The use of integrated instructional systems demands a high degree of co-operation between the various agencies involved in the planning and production of the material. The various channels of communication must all converge on the student or group of students at one and the same time.

The various education and information agencies wishing to set up integrated instructional systems for purposes of teaching or informing large numbers of people must set up a co-ordinating body on which are also represented the producing and distributing agencies. The co-ordinating body must have effective power to resolve competing claims for the simultaneous use of two or more channels of communication by the user agencies. It must also have power to expand specific channels of communication to meet anticipated demand. To be effective, this co-ordinating body must meet on an inter-ministerial basis at the very highest level.

lecture: FILM IN THE EDUCATION OF ADULTS.

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"With the most dramatic film, or story, that we could find after long searching, we were convinced that more could be said to the people about their own shared condition than in any other way. After three and a half years of having worked with visual aids and literature in this way we are even more certain than ever of their force.

Seeing a film together has brought the population into a profound group experience that it had never had in this way before, because the film was not the usual gang-buster or moonlight-and-mandolins soporific, but a challenge to its thinking. The films we began using in the communities were carefully studied for the message they could carry over to the rural audiences, unused to cinema, unused to meeting together for any reason, and unused to analysing or criticising any problem in a group. Every film was chosen for the theme we wanted the people to think about and to talk over together - solidarity, co-operation, democratic participation, voluntary action. These were the primary themes, but many others - the family, love, marriage, emigration, education, work, government, justice, war, fascism, the Resistance - were also the subjects of the films and literature that we have used."

In that quotation from Use of Visual Media for Community Education by Florita Botts, reporting on the pilot project for Abruzzo, Italy 1958 - 1961, I would draw attention to the phrase ..."for the message they could carry over to the rural audiences". This phrase appears in the context of a programme of adult education, the assumption being that there is a message to be communicated. In essence, education is a matter of communication. One person wishes to communicate skills, or facts, or ideas to others and if he succeeds in doing so he has educated and therefore changed the recipients in some way. In studying the use of film in the education of adults we are studying film as a means of communicating with adults, in order to effect some kind of change. In this paper I will examine aspects of communication as they relate to the use of film, discussing first, the preconditions which must be met before communication can take place, then the purposes film can serve, the people who come to the film programme and the places where they meet. Lastly, I shall suggest some principles of choosing films for adult audiences and of using them in such a way that the maximum effect is achieved.

Our headings then are:-

1. Preconditions for communication to take place.

( 2. Purpose for which the films is shown.
(
( 3. People to whom the film is shown.
(
( 4. Place where the film is shown.

5. Choosing films.

6. Using films.

## Preconditions for Communication to take place.

1. Physical perception. The audience must be able to see the pictures on the screen and hear the sound track. These are technical matters, the responsibility of the producer of the film and the person who is projecting it.

2. Intellectual perception. The audience must be able to understand the message, i.e. the film must be composed of visual images which are meaningful to the audience and the commentary must be couched in language at a level appropriate to that audience. The symbols used must be known and the pace of the film must be appropriate to the experience, the degree of film-sophistication, the educational and intellectual level of those with whom we wish to communicate. Some examples will illustrate these points. If diagrams are used to explain, for instance, the principles of infection by water borne agents, these may be quite meaningless to people unaccustomed to this method of presenting ideas. For many people who have not seen how a lens can enlarge objects, pictures of say, parts of a fly's foot, bear no relation to reality. If the angle of view and the lighting of a photograph are strange, if the cutting of the film is too fast, if fades, wipes and dissolves are used, these may be puzzling or confusing to people not sophisticated in film techniques. An overloaded commentary, or one using an impersonal style with many abstract nouns or unfamiliar technical terms, can not only confuse the audience, but also actively interfere with understanding of the visual images themselves.

3. Psychological perception. The audience must be psychologically orientated to receive the communication. If people are not interested in the subject matter, or unwilling to accept the ideas being put forward, the message may be distorted or not received. Cultural differences can play an important part in determining the acceptability of a film. For example, in a film demonstrating child care, it is important that the woman carrying out the actions be suitably dressed and her behaviour

appropriate to her station. If the audience is bored, attention will wander, and if the film presents too abruptly an argument contrary to strongly held beliefs its message may be rejected. If the relevance of the topic is not apparent or the story unlikely in cultural terms, attention will not be held. Not only must the message be understood but it must also be accepted.

Assuming then that the pictures can be clearly seen and the commentary heard, that the audience understands the film and are ready for its message, what kinds of purposes can films serve with adult audiences? Films can be classified in many ways, and here I offer three categories for pusposes of discussion at this conference. They are:- to teach, to persuade and to stimulate discussion of open-ended issues.

Teaching: Many studies have been conducted to find out how best to design teaching films and how to use them. Particularly important is the work done at Pennsylvania State College in the U.S.A. under the leadership of Dr. C.R. Carpenter.(1) We now know that if films are properly constructed they can be used to teach skills, to teach facts, and to teach concepts. (Examples illustrating these will be shown and discussed at the conference). We also know that in order to maximise the learning that takes place, films must be presented by a teacher who prepares the audience for the viewing and makes sure that they want to learn; the learners should then be tested in some way after the first viewing and should see the film a second time. Most of these activities do not fit in with a mass-education situation and it is fair to say that teaching in the strict sense indicated above is difficult, if not impossible, to apply in a mass-education situation. It is in the follow-up work in smaller groups in the presence of a group leader such as an agricultural extension worker, a trade union leader or a women's club organiser, that the real consolidation, i.e. the teaching goes forward. (The question of teaching in such groups may be more fully discussed if members of the conference wish to do so).

Persuading: In a mass-education situation, films are more effectively used to persuade people to a new point of view, or to be concerned with and interested in, a new idea. Such films can be cast in several forms, but one of the most commonly used is that of a story. The audience can then identify themselves with the characters, can feel with their feelings, can experience their emotions, although at second hand, provided the story has dramatic truth and is culturally relevant. If disbelief is thus suspended, interest is engaged and the third precondition for communication to take place can be fulfilled. (An example of this kind of film will be shown at the conference).

(1) Pennsylvania State College Instructional Film Research Programme 1950-56. The detailed reports have been summarized and appear in three successive articles in Film User Nov.1958 to Jan.1959 by L.P. Greenhill and C.R. Carpenter.

Stimulating: Much community development work is aimed at social change. To enlist the people's energies is not easy and democratic action is usually only chieved through discussion and participation in decision making. There are many ways in which people can be encouraged to discuss open-ended issues, and here film can play an important part. In this case it serves not to teach, but as a springboard for disucssion. (An example will be shown to illustrate this type of film).

Who are the people with whom we wish to communicate? What **ought** we to know about our audiences? Will it be a mass audience undifferentiated as to age, sex, occupation and so on? Or will our audience be a certain group in the community, for example, farmers, women, traders, shopkeepers? Are the people accustomed to seeing films? Will they understand the language of the commentary? Are several language groups represented in the audience? What are the interests, hopes, ambitions, fears, taboos, beliefs of the people? How can we get them to come to the film-show in the first place and then pay attention to the film and remember its message long enough to act on it?

In what places can films be shown, in the school hall, in the church hall, by means of a mobile van in the open air? What about the technical problems of transporting the projector, of the supply of electricity, the type of screen, black-out and seating? Would a public address system be a valuable ancillary?

Choosing: Having determined the purpose, established the audience and its characteristics, decided on the location of the film presentation, it now becomes possible to select a film from usually, one of several sources. Immediately the adult education worker is faced with the problem of obtaining adequate information about the films that are available. He needs to know not only the titles of films, where they may be borrowed and what is in them, but also some assessment of their value. He needs a guide to the films available, in order to make a suitable choice in the light of purpose, people and place. How can such an assessment be arrived at? It could be written by the film librarian, but a more realistic statement could be written by another adult education or community development worker, or better still a group of people working in the particular field of adult education. There are systematic ways of conducting such group appraisals and one method will be demonstrated and tried out by members of the conference. (See Appendix 1).

We now come to the final stage in our study of films as a means of communication, that of presentation. How should films be presented? When should they be shown? What sort of introduction should the audience receive? How can the message of the film be reinforced? In other words what are the best ways of using films in order to achieve the maximum impact?

Using: As indicated above we know a good deal about how to use films in a strictly teaching situation. Experiments have shown that the learners normally must be prepared for the screening, must know that they are expected to learn, must be told what to watch for, should be tested in some way after the viewing, must be made aware of what they have missed and should then see the film again. We also know that films must be made for a specific audience, whose intellectual and educational level is known, and that the film should be clearly structured. If the structure is not apparent it should be made explicit by the teacher. But how often do we use films in this strictly teaching sense in the field of adult education, where, as often as not, the audience is free to attend or not, where attention and interest are not necessarily wholly on the subject matter, where there may be language barriers, cultural differences and a wide range of ages. As we have seen, the films must be carefully chosen. Their use should be equally carefully planned.

The timing of the presentation is obviously important. The season of the year, the day of the week, the hour of the day, must all be considered in relation to the activities of the intended audience. Advance publicity to build up interest is invaluable; posters, radio announcements, notifying the formal and informal leaders in the community are all devices in frequent use. In places where mobile cinema vans are employed with a public address system it is easy to announce the subject of the film show and the time of its presentation and an audience can be attracted in the evening with lights and music. These are all familiar techniques. Having gathered an audience, how should the film be introduced? Here intimate knowledge of the people is of vital importance and a skilful presenter who can speak the local dialect, knows the people's interests and anxieties, understands their social and educational experiences, can greatly enhance the effect of a film show, simply by the way he introduces it. He can tell the audience what it is about, why its message is important to them and can clarify in advance those points that he knows will be obscure. Where language is a barrier to understanding the presenter may shut off the sound track and speak the commentary himself, over the public address system. This method works admirably if the presenter knows the film well, is skilful and resourceful, and is accepted by the community as competent to speak on the subject matter. Where there is a shortage of trained speakers of local dialects it is possible to re-commentate the film in any number of languages if projectors which can reproduce a magnetic sound track are available. (If necessary, this technical device will be demonstrated during the conference to those members not familiar with it).

We now come to what is the most interesting and difficult part of the presentation, because it is the most variable.

What happens after the film has been shown? If the message has got across, people will want to talk; if it has not got across the presenter may want to fill it out, explain, give analogies, go over points again, refer to a poster or a picture. What happens after the viewing will be determined by the purpose of the viewing and the nature of the audience i.e. its size and composition. If the film is to persuade people to adopt new practices, it is probably a part of a campaign and some members of the audience may already be half persuaded while others are still doubtful or even antagonistic. In the discussion after the film, all points of view should be expressed and the adult education worker should encourage debate between the members of the audience whilst playing a neutral part himself, unless appealed to for an expression of opinion. When in his judgement the moment is ripe he may offer a follow-up service of some kind, or he may call for volunteers to act as group leaders, or take some action to tip the scales of opinion in his favour. The techniques used will depend on the circumstances obtaining at the time and the subject matter of the film.

If the programme is intended to serve as a spring board for discussion of open-ended issues, most adult education workers find that discussion develops best in groups of between ten and twenty. The object of such debate is to develop a sense of participation and responsibility for communal action; this is difficult to achieve in large groups because it is impossible to win the participation of each member. If the film has been presented in a mass education situation then the problem of creating smaller groups must be met, but if it is used repeatedly in small groups this particular difficulty does not arise. Very often such small groups already exist in the community, for example, church groups or women's clubs, which meet regularly for established purposes, and so on. Many community development workers channel their activities into such groups and through the agency of group leaders create a new social climate in which democratic participation becomes possible. In Puerto Rico this is well appreciated and is explicitly stated in a paper (2) by Fred Wale, Director of the Division of Community Education, of the Department of Education, in which he states the objectives of the Division.

> "To help the neighbours understand that it is their right and responsibility to know and to participate in all matters affecting their communal welfare and that knowing this they can find the way to create a dynamic community supported by their own efforts and contribution.
>
> To help neighbours develop the process of group discussion in meetings where democratic participation is assured and where concensus reached by agreement based on thorough analysis takes the place of voting."

(2) Community Development Bulletin.

Fundamentally the same approach has been adopted in the Pilot Project for the Abruzzo and its application to the use of film is exemplified in Miss Botts' report, referred to earlier.

> "We learned by much experimentation that almost any film could be used if it were presented in the right way. There is of course the first rule: to introduce something new gradually, beginning with the simplest form and proceeding into the more complex. But it also depends on the presentation: over the microphone a brief introduction before the showing, during each intermission a rapid informal synopsis of the part just seen, recalling perhaps the significant words of one character or the other. After the film-showing the audience would be invited to remain for the disucssion of it, or if it was already too late in the evening and everyone was tired, the worker would set a date for his return for another evening to talk together about the film.
>
> This has been our experience with film audiences in every town and village in the Project's zone, and we have found this method to be the most effective and educational. To help each fieldworker handle these showings in the most professional way, we prepared a guide for every film so that he would not have to improvise, but would have the prepared introduction to be read to the audience, the description of the film story to use during intermissions, with the most important dialogues quoted directly, and then at the end a guide for the discussion, the questions to be used to help the group find the message and evaluate the action and the characters."

We have now examined the problems associated with using film as a process of communication. The impact of any one film depends on many factors and a serious adult education worker will take into account the situation of a viewing, the kinds of people he is addressing and the purpose for which the film is being shown. He will regard the film as a tool in his hands and will not stand aside trusting that his work is done once he has chosen and screened the film.

There is a codicil to this testament. It concerns the problem of long term study of the effects of films on audiences and the impact of particular films. Everybody who uses films regularly as part of the teaching programme should keep records of their effect on the audiences they reach out to. I am not here advocating detailed researches using full-scale social science research techniques or controlled experimentation such as that carried out at Pennsylvania State College. Such a plea would be unrealistic, because most of you are concerned with day-to-day activities and with the tasks that so urgently lie immediately to hand. But I am asking that every user of films takes the trouble to keep notes about how the films go down, about the kinds of introduction used, what follow-up activities were pursued and what ensued. If such records are kept systematically and exchanged between workers from time to time, we will be able to build up a picture of how best to use films with the audiences we meet and this will lead us to discover a better guide for the making of films for our particular purposes.

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## study group report: FILM

### Information about films

Many films are available in this country, but a comprehensive catalogue giving details of these films and where they can be borrowed, does not exist.

Film users face difficulties in selecting films for teaching purposes. Film catalogues should give the following information:

1. Title and length
2. Black and White or colour
3. 8 mm, 16 mm or 35 mm.
4. Sound/silent/mute ; magnetic/optical track
5. Maker, Distributor
6. Subject content and aim of film
7. Appraisal of film
8. Kind of audience for which made

   Group or mass audience
   Specialist or general
9. Minimum education level of audience.

Select lists of films suitable for education of adults should be published. Each film, before inclusion, should be tested out on suitable groups and evaluated. The Conference saw the film 'THE RUTHLESS ONE' and evaluated this film. For the viewers' Report Form and the appraisal see Appendix C.

### Using Films

Film, to be most effective, must be related to local scenery, people and language. If films are to be used as educational tools and for purposes of motivation they must be presented by a competent commentator. The commentator must know the films and should know the subject. He must know how to start discussion among the audience of the salient points in the film.

Very few people listen to the sound track, therefore the visual aid is more important than the audio aid. It is often necessary to show a film a second time, after the discussion has taken place.

If two or three tilms must be shown for teaching purposes, they should form a logical sequence.

The film is not an effective media of mass communication to unsophisticated audiences. They are much more interested in the screen, the projector etc., than the content of the film. The audience must be trained to get used to seeing films, by being shown films to the point of satiation. The audience must also learn the language of film, e.g. If we see a fade we get the suggestion of a time lapse. For new film viewers put in "3 weeks later" until they get the idea that a 'fade' involves the passage of time.

## Training Workers to show films

The training of commentators is not difficult. The commentator should be known locally. Provided he knows his subject he is more effective than the professional commentator.

The commentator, as well as the field worker setting up the film show, must know how to design the educational presentation of the film. The commentator must know how to initiate the discussion on the film.

The commentator must give his undivided attention to the commentary he is giving. He must not be expected to project the film.

Projectionists must be trained in the proper use of their equipment and in film maintenance. In the Evelyn Hone College of Further Education there is a department for the training of film projectionists.

## The viewing situation

The Government of Zambia has 30 film vans and 177 projectors for 3½ million people.

For maximum use, equipment must be mobile. Film rovers are preferable to a number of static projectors.

The local organiser of a film show must preview the film. He must know its contents and what will be the likely questions. He must have the answers ready.

Film shows must be organised by an appointed local leader. Plenty of time must be given to publicise the film, what it is about and when it will be shown.

## Film and Film-Strip Production

The 16 mm film is the best size. 8 mm is not significantly cheaper because production costs remain similar.

Black and white film is the most economic. Colour film is three times more expensive but not three times more effective.

The language and the type of commentary for a film can be varied by use of a magnetic strip. A special projector with a magnetic head is needed for a film to which a magnetic strip has been attached.

Film makers should always carefully think out to whom they propose to show a new film. It is very seldom that the same film is suitable both for a mass audience and a teaching situation.

Amateur actors are much cheaper than professionals. Amateurs who are local people will also prove more acceptable.

Best length for a film is 40/45 minutes - suggested that it should be like a woman's skirt, long enough to cover the subject but short enough to keep up the interest.

## The value of film-strips

Film-strips are very much cheaper and more easily constructed by amateurs than films.

Their special use is in the teaching context. The teacher can always stop the film-strip to give his own commentary, but films, provided they are not too sophisticated are probably better for initially arousing interest.

If cartoon figures are used on either film-strips or films, care must be taken to introduce, if possible, some kind of local colour. It is difficult for an ordinary person to identify himself with an anonymous match-stick figure.

## Evaluation

There is great need for a proper evaluation of the impact of films on unsophisticated audiences. In using films there is no play-back from the audience and the operator/lecturer cannot judge the impact the film is having, if any.

The discussion following the film show is a useful indicator of the effect of the film on the audience. The people showing the film should keep a record of the value of the discussion.

After a period of time there should be an attempt to assess from the audience whether they have implemented the aims of the film

## lecture: RADIO IN THE EDUCATION OF ADULTS.

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## THE SIGNIFICANCE OF SOUND RADIO IN DEVELOPING COUNTRIES.

A prominent speaker at the Second International Conference of Broadcasting Organisations on Sound and Television School Broadcasting said in Tokyo last April that this period of history might well be called by future historians THE AGE OF COMMUNICATIONS.

This is an age in which men are learning to look beyond tribal and national boundaries and become truly international, an age in which broadcasting is proving itself one of the great means of communication. From another point of view this period might be called the AGE OF EDUCATIONAL Communications, an age in which Ignorance, with Poverty and Disease, is being fought by all nations of the world.

Sound Radio has taken its place with Television as a powerful medium of communication and has gone from strength to strength in the past decade. In many parts of the world and for many years to come, it will offer effective coverage in areas where television cannot be made available. Even in the less-developed countries, the transistor radio has revolutionized the ordinary man's way-of-life, and it is a common sight to see even the humblest abode, with some sort of receiver. Again, radio transmission is considerably cheaper and less complicated than Television, and presentation is perhaps less sophisticated and so often more spontaneous.

Sound radio has its own characteristics, its own strength and place in education. Perhaps in the fields of music teaching folklore, and language teaching it is still unrivalled, in the presentation of music and the literary arts and in dealing with concepts and ideas. One of the greatest joys for an emigrant from Ireland - such as I am - is to hear over the local radio station while on holiday the Story-teller or Folk-singer unfolding in story and song the tales of the past, of legendary heroes and national figures; the preservation of the national language, the revelation of personalities of the arts and crafts of the nation. Sound radio can play a significant part in being the source of imaginative and emotional experience, of the very utterance of the heart of the nation.

## HOW ADULTS LEARN FROM RADIO

Radio should surely have a civilizing influence, educational radio being the basis of any such influence. The primary objective of education by radio should surely be to stimulate thought, to widen horizons, to bring the latest news and views on world problems to the man-in-the-street. With the alarming growth in the number of illiterates, and the depressing shortage of qualified teaching staff, the less-developed nation's leaders have quickly realised that not only must the educated teach the less fortunate, but that new means of education must be found to combat the growth of Ignorance. Sound Radio like other audio-visual aids media, can teach both directly and indirectly, and can if properly planned and executed, be a vital link in the chain of communication to literate and illiterate.

Sound radio can teach adults by devious means, but to be really effective it must be linked with other visual aids media. Every developed or developing service in broadcasting has quickly come to realise that radio broadcasts, both formal and informal, require some kind of aid to make any education impact on the listener.

A recent development on the accepted audio-visual lines is the great potential value of radio-vision - the combination of sound radio and coloured filmstrips : the spontaneous use of projected slides during a transmission of educational broadcasting material. This type of presentation, less sophisticated admittedly than television, can still be effective and will appeal both to the pupil in the classroom and the more adult learner. Adults can learn from sound radio instruction with the help of other media in mass communications but sound radio alone can play an effective part in teaching languages and the art of music, and other presentations where the emphasis is on the stimulation of thought.

## INFORMAL EDUCATION BY SOUND RADIO.

In broadcasting in less-developed countries, it is inevitable that a time comes when all programmes should contain an educational element : even the newscasts in themselves must have an approach which varies with those of more developed broadcasting systems, giving the listener a basic background to the news, relating the information to local events and to national aspirations. Any such information is not only entertaining but also educative. The School Broadcasts News Bulletin - which is incidentally an integral part of any school broadcasting service is a good example of the type of News bulletin which broadcasting authorities in less-developed countries might well imitate.

Similarly the presentation of other material, though basically meant to entertain, can at the same time, introduce - subtly if necessary - educational factors so as to make the initial impact substantial, and sustain the interest of the listener indefinitely.

There is a wide range of adult listener to be catered for in educational broadcasting. Broadly speaking, there is a two-pronged effort required : first, there must be programmes devised to combat illiteracy, and secondly, programme of a very general nature, where the emphasis might be strictly on language teaching, according to the needs of the nation. The type of listener for informal education of this kind would range from the illiterate to the primary school leavers and more adult sections of the semi-literate and literate.

The problem of languages will always be a formidable one for the less-developed nations where there are several vernacular languages in use, and no real lingua franca. Even with the advantage of a lingua franca, there will still be obstacles in adult education by radio : in fact, only with careful planning and a sympathetic psychological approach to the tribal and ethnological conditions, will it be feasible to present language-instruction effectively. Suffice it to say, that any campaign by radio will need to consider broadcasting material in the major dialects in use throughout the country, as well as using the major language in commercial use.

## FORMAL EDUCATION BY SOUND RADIO.

Educational broadcasting has long had as its backbone school broadcasting. There is scarcely a nation today that hasn't some kind of school broadcasting unit, it is significant to note that the less-developed nations have quickly realised this vital form of education.

Sound school broadcasting has proved that it can teach effectively and comparatively inexpensive. The Radio needs the support of other audi-visual aids in any form of formal teaching, but it can help the teacher or instructor most in certain subjects - in material of instruction of languages and stimulation of thought. The sound educational broadcasting unit should concentrate its work initially on the bread-and-butter subjects such as the teaching of English and French, national dialect(s) national folklore and music, the history of the country and indeed of the world, economics, civics, health and hygiene, topics of agricultural and veterinary importance. If the theatre has its limitations, the radio has this disadvantage too, but both have had to face the challenge of newer media and both have survived and indeed won new audiences.

In considering what can be taught effectively by radio, we must naturally think about the person or group at the receiving end. This problem is one of the most difficult facing planners of educational broadcasts - one must never forget the type of listener one is catering for, when broadcasting to adults. Where general broadcasting has a traditional broad policy of broadcasts for the general public or the man-in-the-street, little research has revealed what the general public or the man-in-the-street really want or expect.

Educational broadcasting must be specific : there must be consideration for both the adult educator and the adult audience to be educated. Broadcasts in that case will be directed at both the individual and the group, but the individual will be the teacher or monitor, the group the class to be instructed indirectly or directly. As the type of broadcasting develops and expands, new agencies will be brought into the liaison scheme, and so initial planning with all kinds of adult educational agencies, and mass media communications will have to be considered initially.

In school broadcasts the radio lesson must never try to replace the teacher, the maxim in the education of adults by radio should follow along the same lines, making allowances for the standard of both monitor and listener. As this matter of liaison is a vital one for the success of any radio campaign in the field of education, so it is necessary initially to direct instruction and advice at the individual - the monitor, the community development worker, the agricultural extension officer, the health inspector and so on. These field staff should be the direct link in the chain of communications, and should ensure the success of the broadcast campaign, in the less developed country. Results may be slower, but they are bound to be surer, as with field staff using the broadcast material and the other visual aid weapons, there is less likelihood of lack of co-operation and reaction to the scheme.

Problems at the receiving end are varied, but again, with emphasis on careful planning and the highest quality of presentation, the individual or group listening to the educational broadcasts should benefit to the full eventually. Initially, there should be a separate transmitter for educational broadcasting with a nation wide coverage. Good reception can almost be guaranteed then, from the start. Now follows the question of receivers, it is highly desirable that these should be reasonably inexpensive yet of durable quality. Standard brands, with good after-sales service and cheap spare-part equipment, should be encouraged; for it is not always practicable to replace an old model with a new one, so this essential after-sales emergency service should be available, especially for rural listening points.

With guaranteed reception and radio-receiver are linked the optimum conditions at the receiving end. How often have we seen a rather depressing picture of listening conditions in the market-place, schoolrooms or community centre, - radio turned on full blast - nobody in charge of the receiver or the "listening" group - in fact, nobody listening properly - the whole exercise a waste of time and money. Yet another voice is added to the babble, and so the whole operation is abused right from the start. Here again it is a matter of vital importance to train the monitor - the link - in the correct use of the material broadcast.

Then we should see a correctly used receiver, with the monitor or teacher near at hand to adjust the volume-control when necessary, to carry out the radio-teacher's instructions when required to assist with the preparation before, and the follow-up - to introduce any necessary visual aids as instructed by the radio-teacher, to guide and assist the listening group as required by the broadcast.

Even in ideal conditions sound radio needs supplementary material to add to the relish - in fact, every developed school broadcasting service realises that broadcasts of this nature must be supported by teachers' instructions, pupils' booklets, illustrated wall - or blackboard material. If sound radio is to be as effective as Television - and there is no reason why it should not be - it needs radiovision filmstrips and other visual aids to sustain the initial interest. In language learning, perhaps sound radio can be effective even with the minimum of assistance from illustrated material, for it emphasises the spoken word and can tolerate repetition and introduce local linguistic problems more readily.

At this point it might be appropriate to mention the necessity for the exchange of ideas, and material, between the less-developed nations, who share more or less the same problems. It is indeed pathetic that in the matter of ideas and script material that any new venture in the field of educational broadcasting in this continent has to automatically look to overseas organisations for support at all stages of development. There is of course nothing amiss about the request for any such advice or assistance, but there must be a greater exchange of educational broadcasting material and experience between countries which face similar problems.

The ultimate link in the communications-chain in educational broadcasting is the listener, who might be found in the comfort of his or her home, in the classroom, the community centre, or under the mango tree. Wherever he is, it is obvious that some evaluation is required. In school broadcasts, the teacher is there to ask questions and study reaction to the broadcast lesson, in the education of adults, the monitor or field instructor or youth leader must play a similar role, assessing the value of the broadcast material and linking it with his own instruction. This type of feed back is indirect for the producer might never know just how useful the broadcasts are, though the Evaluation Forms or Questionnaires returned by teachers and other staff might help to make him realise what benefit the listeners get from such broadcasts.

In both the less-developed and the "over-developed" nation, there is the problem of trained staff and so broadcasting is shifting in its emphasis on teaching to a more direct approach. To be fully effective sound radio needs the support of correspondence tuition, and where practicable, personal contact between correspondence tutor and pupil at the listening end. Complete courses of this kind will naturally make enormous demands on air-time, broadcasting staff and field-staff who will be involved in the basic organisation of such a scheme. Though costly, and requiring as elsewhere superb organisation, the correspondence course method is direct, and results can be assessed more quickly.

## TECHNICAL AND ORGANISATIONAL PROBLEMS.

Educational broadcasting has two fundamental characteristics that distinguish it from general broadcasting : an educational broadcast must be direct, specific, defined, precise - with a fixed audience in mind. So no two educational broadcasts will be the same, and just as in school broadcasts, the emphasis will vary from standard to standard and form to form, so in the education of adults every radio-lesson must have this fixed aim to succeed. Because of its basic set-up, educational broadcasting will be a firm mixture of education and broadcasting, and so a relationship must be established at the outset of any radio campaign of this nature to ensure that educational control should be in the hands of those who carry responsibility for education but that there should be free scope for the creative activity of educators who really know, as professional men, the medium of broadcasting.

The producer of material of this nature will be aware of the technical problems involved, he or she will realise that without suitable transmitting and recording facilities, and with sufficient receivers in the field, all the initial planning will be a waste of time. Training of suitable staff right through the chain of communications will again be essential as unless the vital link in the field is fully aware of his responsibilities, the value of a campaign of this nature can well be negligible.

The wise producer will realise too that the approach in presentation demands, tact, forsight, sumpathy, there must even be allowance for trial and error and experiment with material, skill in linking the radio-talk or discussion with other audio-visual aids. material.

The user, likewise, has problems of reception and training in the use of specialised material. Training will be required for field staff using these techniques, otherwise they might be instrumental in undoing all the good work at the transmitting and recording end. The individual must be made to realise that he is just as important as the radio-instructor in the eventual effectiveness of broadcasts, and that he can use his knowledge both directly and indirectly in assisting the programme. The group, for their part, must be fully informed as to the value of the broadcasts and instructed in the correct use of material both immediately after the broadcast, and as a long-term policy.

## CONCLUSION

Both great and small, over-developed and less-developed, acknowledge the fact that in this specialised field of education there is still a long road ahead before the discovery of an ideal use of the broadcasting media. There is a determination, however, to use the medium as a real cultural and educational force and not simply for the diffusion of idle mass entertainment. Given reasonable transmitting and receiving facilities, there is the acknowledgement that only expert organisation, training, planning and research can bring sound radio an even greater share of success in its battle against poverty, ignorance and disease.

## THE USE OF MASS MEDIA IN THE EDUCATION OF ADULTS.

## TWO EXAMPLES OF ADULT EDUCATION PROJECTS

Location : Tanzania (Kilimanjaro and Arusha Regions:Eastern Region)

Duration : 1959 - 1962

Organisation by : Government of Tanzania

Ministries involved : Public Relations, Community Development, Agricultural Department

Projects : "Freedom and Sweat", Increased productivity plan

Aims : To show the people what Independence meant and what they themselves must do through self-help schemes, to assist in increased productivity schemes, especially in cotton-growing plans.

Research : Carried out by members of the various departments concerned, both by field staff and Headquarters staff in Dar-es-Salaam.

Areas for Campaigns : Kilimanjaro Region mainly (then part of the Northern Region). Ilonga/Kilosa Region, Eastern Province.

Reasons for choice of areas : Both were unusual but vastly different. The former was one of the most progressive and economically advanced. The latter one of the less-developed areas in the country.

Plan of Campaigns : UHURU na JASHO - Freedom and Sweat - conducted by a Senior Public Relations Officer and field staff, who chose a huge vacant sloping area near Machame township, with Mount Kilimanjaro as a natural backdrop.

Radio played a major role in broadcasting publicity before the Campaign, during the actual week-long proceedings, and of course afterwards. Major radio contributions were news and background items, on-the-spot recordings of story-tellers, musicians and other contributors, discussions, recording of playlets written specially for the campaign. (These playlets were on hunger, self-help, superstitions, illiteracy).

Plan of Campaigns (Contd.)

: The second campaign was a three-year and more elaborate campaign in which Community Development and Agriculture co-operated, a senior member of the staff of the latter Department being seconded to the I.P.P. Unit operating from the Community Development Training Centre, Tengeru, Northern Region (now Arusha Region) Tanzania. After months of preparation during which the Film Unit of Tanganyika started making Cotton-growing and other relevant films, an intensive three-month course was held at Tengeru for community development and agricultural field staff.

Here again, radio played its part in explaining the scheme to the people, in recording playlets for both trainees and groups, in presenting various programmes connected with the scheme. The Agricultural programmes from Radio Tanganyika were particularly useful in helping to make the campaign a success.

In conclusion it may be stated that both these Adult Education Schemes, with modest expenditure and limited staff, were examples of what could be done when the various Mass Media techniques were all engaged in a major operation where there was sound planning and genuine co-operation. They showed the various authorities concerned that the use of mass media in the education of adults is a vital force.

# study group report : RADIO

## The use of radio in stimulating the individual

A group is an assembly of individuals each with his own motives and interests. Therefore, the starting point of the discussion must be the individual.

The factors to be considered in the use of radio are -

a) the transmitter and the receiver as prerequisites

b) the time of broadcasts

c) the material and presentation of the broadcast

d) the personality and skill of the broadcaster.

As regards time, educational broadcasting has to compete with newscasts, commentaries and entertainment for the peak listening periods which are in the early evening. A policy decision could over-ride other considerations, but such action would be likely to undermine confidence in the medium and could not guarantee an audience anyway.

## The use of radio in stimulating the group

Farming is the largest single occupation in the country. For farmers the Forum approach is an ideal one because of the "feed-back" from discussion. However, it requires in its classical form a large amount of organisation.

Listener groups could be created from existing bodies, who had already shown their willingness to be organised.

Radio is only one educational aid, but a very powerful one. Its use is no substitute for normal extension methods. Indeed, it can only support such efforts and it must be introduced by them.

## The Broadcaster

Personality is essential. The broadcaster's approach is intensely personal. To carry conviction he must be in close sympathy and even physical contact with the community he is addressing.

There is a great reservoir of potential broadcaster material, but the persons have got to be found and trained.

## Material

An audience can only be expected for a broadcast if the subject is of interest and the presentation acceptable. Ideally, subjects must be inspired by the wishes of the listener in practice this may not be the starting point and it is for the programme planners to create interest and lead the listener on to subjects upon which it is necessary or desirable that he should be informed. This process must be skilfully done. Information is best given in small doses and the limitations of the medium is that no more than one, two or at the most three ideas can be projected in a single talk.

The African listener likes and understands music and music forms. It is probable that instruction and information should be blended and linked with musical items.

Full dramatic presentations might not be generally understood or might be too complicated. However, the African listener is well acquainted with the story form and the dialogue-these might be freely used and in particular, the interview technique would be acceptable. There is danger in trying to cater for a wide variety of educational levels at one and the same time. Broadcasts should be localised and selective; the maximum use of regional transmitters is very desirable.

Broadcast material must be topical and be of immediate application. A programme must be positive in approach; if new ideas are presented, the listener must be carried from the known to the unknown.

The Adult Educator must be represented on the programme planning committee of the broadcasting service.

## Subjects suitable for radio presentation to adult audiences.

a) Groups: Groups divide into formal and informal categories.

Informal Audiences which might be

1. Individuals or Family Groups - i.e. radio in the home.
2. Interest Groups - Farmers' Clubs, Womens Clubs, Literacy Classes etc.
3. Casual Listeners at Community Centre Radios - listening to news bulletins etc.

Formal Audiences - students following adult course syllabus etc., either

1. in class at night school
2. as individuals - e.g. correspondence course.

An important distinction between these two is that whereas the Formal Group has to follow a set programme designed in relation to a Certificate, Diploma, etc., the Informal Group should play a large part in influencing what programmes are broadcast since they will only listen to something that they want.

b) What types of broadcasts? The group discussed briefly the type of radio broadcast needed. It was agreed that much thought and preparation should be given to the presentation so that the listener's interest is maintained. In Africa, radio education is new so experimentation is possible. Habits of good listening can be built up. A cautious experimental programme is therefore possible.

c) Co-ordination: Adult education broadcasts should be planned by interested agencies, e.g. radio producers, adult colleges, Ministeries of Health, Agriculture, Development, the University, etc. They should all be involved by creating consultations sommittee whose job it is to plan programmes and PROVIDE MATERIALS. Provision of materials is the biggest problem.

d) Educational Services: In Tanzania there is a third programme network whose job it is to provide educational material. A third programme has obvious advantages, but must compete with the more popular networks and therefore must establish itself as a viable alternative.

e) Radio Syllabus:

Technical Subjects - only presented with difficulty.

Formal Education - syllabi already exist.

Informal Education - should be problem centered.

b) should be aimed at Standard VI level. (This will depend on circumstances in individual countries).

c) should be simple and direct.

d) should adopt the differing priorities of the different nations.

e) might concentrate on the following (based on Tanzania's experience).

1. What is a nation - looked at politically and socially.
2. Problem of manpower development and education.
3. Analysis of physical resources available.
4. Problem of economic development.
5. Problem of social change.
6. Perhaps some history.
7. Analysis of how government works at all levels.
8. Detailed analysis of the countries economic plan and its implications.

**Subjects suitable for radio.**

| Groups | Technical | Language | Scientific | Humanities | Social Sciences |
|---|---|---|---|---|---|
| Formal | No | Yes | No | Yes | Yes |
| Informal | No | No | Yes | Yes | Yes |
| **Individuals** | | | | | |
| Formal | No | Yes | No | Yes? | Yes |
| Informal | No | No | Yes | Yes | Yes |

**Written material to support various radio programmes**

Listening public divided into (a) Schools and (b) Adults - (General Public).

**(a) Schools**: Primary, Secondary, Teacher Training Colleges. All radio material must be based on the approved syllabus (approved by Ministry of Education).

**Primary Schools**: Teachers or educationists get their material from either books recommended by the Ministry of Education or select examples and include them with the teacher's notes and illustrations. Plays can be prepared from approved text books. Teacher in classroom aids the session by demonstrating the radio session before-hand (with supporting material of maps, posters, diagrams, etc.). This material must be in front of children during the session. Interview type of programme is useful (2 voices) - it should be preceded or followed up by printed material.

**Secondary Schools**: Much the same technique suitable as in primary schools. Dramatization is successful in language teaching but supporting written material must be in front of pupil (supporting blackboard presentation already up) dictionaries, equivalent phrases etc. Follow-up by teacher in question/answer form.

Teacher Training Colleges: School management - very difficult but usually done in form of visit by script writer to a certain school, interview (question/answer with Principal) then worked into a script back in studio (often in question/answer form). These are also printed in Teachers' Notes and sent to schools before the radio session. Then follows the demonstration lessons.

(b) Adults: Booklet covering all subjects are sent to community centres, clubs, etc. Series of lessons or talks. Students are asked to read, discuss comment well in advance of radio session. Talks prepared by various ministries - but radio broadcasting organiser co-ordinates all these.

Printed material required in the field of citizenship, simple economics and geography, English and vernacular language, agriculture, etc. After listening to radio session groups are asked to send in their criticism, comments, etc.

The radio station can be turned into a power house of ideas for teachers - use of flannelgraphs for teaching English; duplicated figures can be sent out and the radio programme will tell the children what to do - e.g. Put Johnny's hat on; and the class with their figures do just that. Teachers can be sent nature study observation charts and the children asked to put in the date when the frogs eggs were laid etc. Simple and inexpensive aids for teachers to be used with radio programmes can be sent out, many teachers cannot draw or have not the time. Care must be taken not to remove initiative from teachers.

## Syllabi for teaching by radio

The study group asked the question whether the present school syllabi designed for class room teaching are suitable for teaching by radio.

## Techniques in radio presentation best suited to audiences in Africa today.

Programmes for adults should keep adult experiences in mind. They should have more humour and dramatic impact than childrens' programmes. Many current programmes contain far too much straight talking or lecturing. This is quite unsuited to an unsophisticated audience.

Techniques requiring listener participation and feed-back (in the form of letters or reports) are useful. They create interest and give information to the producers.

Use of local material, voices, news, personalities, heighten the interest, helping the listener to identify himself with the programme.

Dramatisation should be employed as much as possible. For formal programmes this would have to be limited and scripted, but more spontaneous unscripted drama could be usefully employed for informal groups - more alive, realistic effect.

Dramas can be made up from local problems - morality, drunkeness. Travelling dramatic groups, travelling from village to village, become acquainted with the village life and certain village characters. They then produce their plays around the local problems and characters, working in the names of the local people which creates a tremendous interest.

Music is a very effective medium - theme songs, call signs etc. Identify the programme and encourage regular listening.

Where specialised radio techniques are used which are liable to be misunderstood e.g. music used for bridging gaps, different qualities of sound, etc. The audience needs to be educated by explanation.

Research into listeners habits and cultural background is necessary e.g. what time should programmes be broadcast, for how long, what sounds and techniques will be understood.

The person who presents the programme is often speaking from a mountain top. He must talk to the people and remember that he is talking to them, especially for the less educated group. People criticise when speeches are read. The great difficulty is to get a script written as though one were talking to people. Simple words must be used. The main point should be repeated at the end of the programme.

A new point of view can be got over well by the presentation of a variety of views, leaving the listener to exercise his own judgement, and to decide which is the most sensible view discussed.

A sample audience in the studio can hlp the producer to judge typical reactions.

Radio can be very effective in some forms of practical training e.g. teaching villagers how to build a latrine, making marmalade, jams, etc., from local fruit, both these ideas were carried out successfully in South America. There, aid officers were used who came to the villages with the necessary materials, called the villagers to listen to the instructions on the radio and followed them in front of the villagers so that they could see how to do it.

## lecture: THE PRINTED WORD IN THE EDUCATION OF ADULTS

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### Literacy

A discussion of the printed word in adult education might start with literacy.

**Is literacy necessary?** We raise the question because we have often heard educational leaders in countries with high illiteracy rates seriously discuss the issue. With the coming of radio, T.V. and the cinema they wondered whether sufficient knowledge might not be transferred by these media to the illiterate masses to make literacy obsolete. They questioned whether books, newspapers and the printed word were really necessary for the further development of their countries. Maybe newer technologies could replace Gutenburg's idea.

To us the issue is absurd. Civilization itself rests upon the bedrock ability to communicate ideas through time and space. Recorded history began with the written word. Reliable transmission of the cultural heritage depends almost entirely upon written language. No other mass media offers the advantages of the printed word.

Reading is the most flexible media available for the transfer of ideas. Literate people can read at any time and place, and without the need for machines. Reading, while a mass media, is a highly individual activity. People can read at their own rate, in short or long periods, with minimum fatigue. We would not depreciate the usefulness and the power of radio, T.V. and the cinema. However, these media do force conformity to a time schedule and fixed pace without the possibility for easy repetition for those who have missed a point.

**Shall all be made literate? Now?** Discussions of literacy, however, often are based on assumptions which are questionable. The benefits of literacy are so great that it is easy to say

Everyone on earth should be made literate - immediately.

At the risk of being misunderstood, we want to say that we seriously doubt the wisdom of that statement. The Director-General of UNESCO has said that illiteracy could be wiped from the face of the earth in a decade if we applied enough resources. Conceivably he is right. Appealing as the idea is to developing countries, the problem and solution are not so simple. Undoubtedly we could come near the goal if we had unlimited trained personnel, organizing leadership and materials. But would governments in less-advanced countries want to take money and people from other high priority work to establish universal literacy? We would like to think so although so far very few have attempted it. The resources wasted on armaments alone would be enough, but many national governments do not yet seem ready to abandon the principle of physical force. If we had to take resources from other social services, I doubt that most people would want to create the resulting imbalance. Food and health services, for example, are usually more valued than is literacy.

For adults, attainment of literacy to the third or fourth standard requires about 200 or so hours of concentrated effort. This effort often is not forthcoming unless there is a strong personally-felt need. A significant portion of the illiterates in the world today, because of age, environment, or their cultural situation, do not feel this degree of need. To try to teach people without a felt need to learn is a most wasteful practice. Yet stopping short of functional literacy is equally wasteful.

Parenthetically, we might add that enormous sums are being wasted annually whenever only one or two years of primary education are provided to large numbers of children. This is happening in many developing countries. In their enthusiasm for literacy, many educational leaders forget that the pay-off in the investment depends largely upon reaching a level of functional skills which can be maintained.

### Should literacy be started without environmental support or follow-up?

Once literacy is established, the skills can be maintained only in a supporting environment. Possibly a majority of the illiterate adults today live in an environment that does not support literacy - too little reading matter and too little need to read under their present way of life.

One of Mushtaq Ahmed's studies in India showed that 60 per cent of those who became literate had relapsed back into illiteracy within a year. They had almost nothing to read and too little need for reading to maintain their skills.

If the environment does not support literacy, then artificial follow-up skill-maintenance activities have to be provided usually at a cost greater than the original literacy instruction. Ideally, of course, it would consist of a continuing adult education programme which very few nations have been willing to undertake. However, the establishment of systems of education throughout life could well be a major social development of this generation.

Lest we be accused of being anti-literacy, let us say that we strongly believe that literacy is a fundamental tool whereby a people can lift themselves by their own efforts. However, literacy cannot operate alone. It is best developed in conjunction with many other socio-economic-cultural institutions. Instead of evangelistic mass campaigns to wipe out literacy, we could better apply our intelligence and available resources to the problem at points where most results could be produced. One of these is printed materials.

## Preparation of Instructional Materials

We would like to limit the discussion of the printed word to instructional materials but expand it to include any form of communication which can be pre-planned and mass-produced in permanent form. Thus we include not only printed words on paper but illustrations, graphs, charts, maps and other printable matter. Lantern slides, films, filmstrips, records and tape recordings, models and kits of equipment are included. They are forms of communication which can be pre-planned and prepared by experts, produced in large quantities, and made available for mass education, either to individual students or to classroom teachers to make their teaching more effective.

We often tend to favour the printed word because of its relatively low cost. Books are inexpensive. Once written and in type, they can be reproduced in large quantities for little more than the cost of the paper.

But cost is always relative. Our first thought must always be: How can we best teach what we want to teach?

Unfortunately, much of the curricular content in schools around the world is cultural heritage material which has outlived its usefulness. Or it is unrelated to the problems of living in the culture where it is taught. While this practice is wasteful with children, it is absurd and even unethical and outrageous with adults. This brings us to the problem of curriculum.

### What are desirable steps in preparing instructional materials?

1. Define goals. We need to start out with a careful definition of measurable goals stated in behavioural terms. As learning is essentially the changing of behaviour we are trying to induce and make habitual. Also we want to be able to measure the new behaviour in order to know how well our efforts are succeeding.

In our way of thinking, knowledge for the sake of knowledge has no place in a state educational plan. If, after acquiring the tools of learning, a person wants to pursue knowledge for its own sake, that is all right. But the need is so great for people to acquire knowledge useful in their own lives that schools, both for children and adults, should focus on this primary need alone. This is true in both the more advanced and the less advanced countries.

The first duty of the school is to help people learn how to do better the desirable things they are going to do anyway. In behavioural terms, this does not mean teaching quantities of subject matter as is common in traditional educational programmes. Instead, it means teaching new responses to both old and new situations - the creation of new behaviour patterns, if you please.

### Is subject matter or problems of people more important?

2. Analysis of the job. Good instructional materials are based on an analysis of the present job to be done, on the behaviour to be learned. Only relevant knowledge and skills are included. Storing up of encyclopedic information and skills for possible future use is wasteful. The record of educators in estimating what any individual will need to know in the future has not been too good. We cannot afford to waste our time guessing the future when present learning needs are obvious.

A job analysis takes apart the task to be done. It may be bricklaying, writing a meaningful and communicative letter, or developing ability to decorate a home. The various detailed sub-parts of the activity are the elements to be learned - separately or in combination.

Under the job analysis approach knowledge of subjects as organised by scholars is no longer the centre of learning. Learning becomes problem centered. The subject matter relevant to the problem or task is drawn from all appropriate subjects. Obviously this means that the producer of materials must go to the present-day source. The living activity as it is carried on by the best practitioners is the primary source rather than the heritage in books. The producer of effective materials cannot simply re-write content of older textbooks.

3. Organise the material. The sub-parts, as revealed by job analysis, should be organised with their own sub-units so that every detail is included in its proper place. These sub-parts make convenient learning units. Often they are identified with handles; headings, captions, italics, and other devices which help the student distinguish what is important. They may also help the student to grasp the material faster and remember it better.

4. Plan the sequence. Ordinarily learning steps should be small and in such order that students can move from step to step without error or frustration. If an element is included in learning material, it should be learned and given the necessary attention. If something is not really to be learned it should be omitted from the material.

5. Arrange for plenty of specific student responses to specific stimuli. Stimuli should require the students to make the specific responses you are trying to teach. Learning is an activity and not passive absorption. Only when a student has made the proper response can you know that he has learned.

What is the primary purpose of tests and examinations?

Good instructional materials are shot through with tests which are stimuli. They bring responses which can be evaluated at once and fed back to the student to show him whether or not he has learned. In the preparation of instructional materials, tests are used primarily for teaching. End-of-course examinations may assess overall achievement. The total materials, however, should be filled at every step with tests of all elements to be taught.

Our ultimate concern is not whether a student can pass an academic or achievement test or final examination (although too many national school systems are organised along these lines), but whether he can use the material being taught. We want the student to know at once whether or not he is learning and for this reason provide abundant feed-back. We spread test items throughout the materials not to sample and assess knowledge marking purposes but to reinforce knowledge and skills. Tests are learning experiences. We should keep this distinction clearly in mind. Tests within the course are intended to induce activity and give practice which leads to learning.

6. Test and revise the materials until they accomplish the objective. This last point brings us to a whole new philosophy in the preparation of instructional materials. Traditionally, we have expected teaching to include a good presentation by the teacher. Many formulae have been developed for guiding the instructor's presentation. Presumably, after a good presentation, if the student had not learned, it was his fault. He was either stupid or inattentive.

### To what extent should materials be self-teaching?

Textbooks have usually been written on the assumption that a teacher would always be present to explain, to fill in missing data, or to elaborate. Historically, the teacher came first. Textbooks had only a supplemental role as they have in most parts of the world today. Now we are moving into an era when instructional materials are central. In fact, increasing numbers of people are engaged in systematic learning without the immediate presence of a teacher. The mass media, correspondence courses, and programmed instruction are taking over sizable areas of instruction. The significant teaching is done by the people who prepare the instructional materials. Correction of student work, when not provided automatically by the system, often becomes something of a clerical chore. Teachers still have important roles to play, but they are changing.

A great many textbooks in the past were written without being tested for effectiveness. That is now changing. We now judge quality of instructional material by its effectiveness in helping students learn. We test it in preliminary editions, find out wherein students do not understand, try to figure out why they do not understand, revise the materials and try again. This process is repeated until a high degree of perfection is reached. Many of the better textbooks go through a dozen or more trials and revisions before finally being published in large editions.

### What are attainable standards?

If a majority of students do not get at least 80 per cent right on a correspondence lesson something is wrong. Very likely the instructional materials are inferior. They do not teach well enough. Many of our correspondence schools aim to develop materials so that the average student will get a mark of 95 per cent. If the materials are really good, a fair per cent of the conscientious students will get 100 per cent mark or near there. Old notions of allowing or even making learning difficult are obsolete. Learning is difficult enough. We need to do all we can to make it easier.

In programmed instruction an error rate of 5 per cent on a lesson indicates questionable material. The aim is 100 per cent. If it is at a suitable level for those enrolled, many conscientious students will approach the ideal.

Why else do you have subject matter in lessons if you do not intend for students to learn it? What kind of a farce is a passing mark of 70, 50 or 40 per cent? With such standards either the teachers or the materials or both are doing a very poor job.

In the past students who failed to maintain the standards required usually dropped out or were forced out. We are now learning that this is an unnecessarily inhumane practice. Untold damage has been done for generations by teachers who have branded certain pupils as failures. In the past we have scrapped people who could not keep up. Now we scrap instructional materials that are not good enough to do the job. We find it less expensive in the long run.

Sound theories of education combined into programmed instruction are also teaching us new notions of human development. Several research studies and practical applications have shown that students of relatively low ability can make passing and even good marks. Abler students may finish the course earlier but less able students often do as well in the end.

One example is happening at the Maryland State Prison. Many of the prisoners are school failures and drop-outs. The director of education has found with new, tested programmed instruction material, the school failures and drop-outs are making good marks. In past years when ordinary untested textbooks were used, men who left prison would often get into trouble and be returned. Now those who finish secondary school with the new programmed materials usually get jobs and become good citizens. Education makes the difference. The new instructional materials make it possible for them to learn.

We have long tested the students. It is high time that we use only tested materials of instruction.

## What are good instructional materials? How are they prepared?

### Elements of good instructional materials

1. *Ideas are expressed as simply as possible*. Except at the highest post-graduate level the complex language and vocabulary of scholars should be avoided. No unnecessary explanations or illustrations are used. Every illustration should serve a teaching purpose.

One lesson for us comes from a 51 page farmers' bulletin put out some years ago by our Department of Agriculture. It explained how to cull chickens. At that time our average educational level of farmers was eight years. Few farmers are going to read 51 pages of college-level material to learn how to cull chickens. The material was analyzed and re-written into four pages, mostly illustrations with captions. The four pages tell about all a farmer needs to know about the subject. The 51 pages may be suitable for other scientists.

2. Readability level is at or below the average for the audience. Much instructional material seems to be written by experts to impress other experts. Scholars and writers often seem afraid to express themselves in simple language for fear that others will think them unscholarly. The student, who is no expert at all, must do the best he can to understand.

Several reasonably scientific readability tests are available for testing reading materials in the English language. The tests include those by the late Irving Lorge of Columbia University, Edgar Dale of Ohio State University, Rudolph Flesch and Robert Gunning.

In general, common Anglo-Saxon words in short sentences in short paragraphs make material easy to read. It has been found that sentences averaging longer than 20 or 21 words become difficult for secondary school leavers. Lower educational levels need shorter sentences. We must remember, too, that the typical school leaver relapses a grade or two in reading ability after some years out of school.

The formula themselves do not tell a writer how to write simply and interestingly. Natural creative writing talent can be improved upon by appropriate instruction. The tests do assess the relative difficulty of materials. They indicate the educational level required to read it with ease and comprehension.

Readability is also influenced by length of line. Excessively long lines of fine type close together are so repulsive that we often rebel and refuse to read them unless we must. Newspaper columns offer easy-to-read short lines. Lines of 4 to 4½ inches are about maximum for book type. A seven inch typewritten line is difficult unless the material is double spaced.

3. Type, size and style are appropriate. Experiments show that ornate type styles should be avoided. Large, open type with simple, clean lines is best. Most newspaper type is much too small, particularly with new literates, older people, and people with eye defects.

4. Materials are appealing to the eye. Materials do not have to be expensive to be good looking. Bright colours help. If you cannot afford two colours, a dark shade of some colour, such as brown, blue, green or purple is often better than black. Newsprint is used by a large American university for some of its materials. Attractively designed and printed in colour, the materials are quite good looking but inexpensive. Newsprint is not suitable, however, for materials that are heavily used. Paper must be durable enough to stand continuous handling in study.

5. Design is both artistic and functional. Design should help carry the message; it should not interfere. Design begins with the organisation of the manuscript. How often have you seen a solid page without a single paragraph break? Page after page of long paragraphs without captions make formidable reading. Such material repels readers.

In setting up the page, do not leave the printer uninstructed. He is likely to be the product of his cultural heritage too.

A break in the page should not break up a thought. If a chart or outline belongs together, design the book to keep it together. Insert oversize folded pages if necessary for large charts.

White space should be used wisely for artistic and restful effect. The author or printer who crowds and clutters a page with print is defeating his own purpose. Normally the largest margin goes at the bottom, the smallest at the top, with equal margins on the sides. If the book is to open flat, inner margins can be narrowed because the two margins come together forming a double margin.

If the sheets of paper are to be stapled together at the back, the margin should be extra wide to leave room for stapling and opening. Sewed bindings or saddle stitching are preferable for instructional materials. They are more durable than other bindings and permit the pages to lie flat.

These details admittedly are quite elementary. We remind you of them because they are so often overlooked.

Who should prepare instructional materials? Several specialties are involved in the preparation of good instructional materials. Seldom are they found in the same person. The best materials are often written by a team which includes the subject specialist, a writer, an educator or psychologist, and an illustrator. They can best plan their work together in joint conference.

If the material is written by a subject specialist, the writer re-writes or edits to achieve the desired clarity and readability. If the writer organises and writes the material, the subject specialist reviews it carefully to correct any technical errors. The educator works with the other two at every step to be sure that the materials are prepared along educationally sound lines. Materials are revised until all on the team are satisfied.

An artist or illustrator will be needed if photographs, sketches, or other illustrations are to be included. Most instructional material can benefit greatly from good illustrations. Professional artists often handle the general design, layout, and format of the materials. It is important to bring the artist into the planning early enough so he knows the purposes to be served by the artwork.

Artwork can generally serve more than one purpose. It can add variety, please or amuse and thereby add interest, and instruct.

Artistic perfection is less important than functionalism. A teacher's rough sketch that illustrates exactly the point he wants to make is better than a professional drawing that obscures the point.

Subject specialists often know their subject so well that they find it hard to write for a beginner. Writing programmed instruction materials, for example, is a specialty, as is the writing of test items. The work is often done by psychologists.

**Can classroom teachers prepare good materials?** Some of the best instructional materials are written by classroom teachers who know the subject sufficiently well for the intended level of instruction. Yet few teachers are sufficiently gifted, practiced, or trained to write really good materials even if they had time. Preparation of sound instructional material takes many hours for each hour the student will study.

After initial preparation, the materials are tested on small groups of students and revised as often as necessary. Correspondence schools are in an excellent position to do this as all the student responses are written. When they come in for correction and marking, each element can be analyzed to see wherein students are not learning. These indicate points for revision and re-testing.

**Why are programmed materials difficult to prepare?** In developing programmed instructional materials, the course writer sits down with a sequence of students and follows each student's mental processes. He makes notes of every place the students have difficulty. He builds the instructional materials step by step in harmony with the way the students' minds work. Later the material is tried on small groups and then larger groups. It is revised until each step can be mastered by 95 to 100 per cent of the students. Obviously a teacher or writer would need to be released from other work for extended periods of time to prepare such materials properly.

You will readily see that this type of approach is a far cry from preparing materials by simplifying scholarly sources, old authorities, the cultural heritage, or knowledge organised by and primarily for experts.

Programmed materials are based upon the way the human mind works. The building of programmed materials requires fresh interviewing and research guided by the learning objectives which are expressed as behaviour. It is much easier to stick to old approaches, old habits, and accepted traditional objectives. One must guard against the perpetuation of obsolete materials and objectives which do not fit the culture for which he is writing.

### Can imported materials be used successfully?

We need a word of warning about importing learning materials from a foreign culture. Translation into native languages is still worse.

Every culture has its own sociological and psychological characteristics which should be recognised in the building of learning materials. Even language bearing the same name is often different from region to region. In the U.S.A. writers of materials for farmers found that places as short as 30 miles apart showed up significant differences in languages. When the same subject matter was written especially for each local vocabulary and idion, comprehension was increased.

In India among 150 million Hindi-speaking people there are literally hundreds of different language groups and dialects. When pure academic Hindi is used over the radio, practically all of the villagers and uneducated people are so amused and distracted that they fail to comprehend much of the content. The better-understood radio speakers are the ones who make adaptations to the local dialect.

We are sure that much of the seemingly slower comprehension of English language materials among native populations is due not to any mental deficiency but to the use of materials foreign to them.

The English and Americans are aware of the differences that have grown up between their languages. We both are also aware of many internal regional differences. Some differences appear in the spoken languages but others are in written language also. Thanks to the oral mass media, we each are developing a more internally-consistent oral language.

Other cultural differences also reduce the effectiveness of foreign materials. How much can a descriptive chapter on family life in America or England mean to members of the Indian joint family? How many of the findings of a research study in psychology in one country can be applied in a foreign culture?

These situations may pose seemingly impossible problems. However, if we want good instructional materials, we must recognize that they can best be developed with the culture and language of eventual use. Subjects differ in their importability however. Mathematics may need a minimum of change. Science needs more local adaptation.

The essential new element in production of instructional materials is that they be tested. They must be tested on the same kind of people and under essentially the same conditions as on which they will later be used. Cultural differences are likely to be much more fundamental than language itself.

Start with materials from other countries if you must but by all means develop local materials as soon as possible. Make sure that they fit the needs and backgrounds of the students.

What is the role of newspapers and magazines?

In the production of instructional materials we must not forget the role of newspapers and magazines. They often reach larger audiences than do books. Many good newspaper writers have long been conscious of and concerned with readability and communication longer than have most teachers. Newspaper writers often get meaning across when learned men do not.

Adult educators would be wise in using newspapers much more than they do in reaching the literate segment of the public. Wherever adult educators in the U.S.A. have worked with newspapers in providing adult instructional materials, they have usually found the papers co-operative. While newspapers may not want to print academic material from the primary and secondary schools, they will readily publish attractive sequential materials on topics of adult interest; current history, economics, political science, citizenship, agriculture, science, health, homemaking and similar subjects.

At this point it is interesting to remember that the world-famous International Correspondence Schools started in 1891 as a series of lessons in coal mine safety in a mining magazine of that day.

Needless to say, such materials ought to be prepared in ways that induce activity in the readers. Are you familiar with the number of people who do cross-word puzzles in newspapers and take quizzes? These are only two ways that exist to induce learner activity. Is there any reason why a newspaper could not carry a correspondence course with responses sent to a school for correction?

### How can professional magazines and correspondence courses be related?

Instead of expository articles in professional journals that often are not read- or if read require no response - why not publish a correspondence course? If a professional journal carrying a correspondence course went to your thousands of primary teachers, only a suitable incentive system would be necessary to induce many of them to study. It could be a major way of upgrading your teachers - or any other literate occupational group for that matter.

One useful idea that is beginning to take hold in the U.S.A. is the continuing correspondence course. Instructional units are issued periodically, often monthly, to a cadre of workers in a business or industrial enterprise. In government the tax bureau, department of agriculture, health department, or branch of the armed forces may operate a continuing course. The continuous flow of new developments in the field are put into correspondence lesson form. The course never ends. It is continuing education at its best. To maintain status, or for promotion, employees are expected to keep up with their field.

This type of thing is properly the work of extra-mural departments which presumably include people who know something about production of good instructional materials. Such systems often work best if operated jointly by the extra-mural department and the government bureau of private enterprise concerned. Subject matter is likely to come best from the operating agency while instructional methods and preparation of materials is the function of the educator.

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Under the new concept of materials, we are much less likely to blame students if they do not learn. "Know your students" is still the first law of teaching. Secondly, if they do not learn, analyse the instructional materials to see *why* they are having difficulty.

Building effective instructional materials is an expensive process, but we are not doing it for a roomful of 30 students. We are doing it to save lesson-planning and preparation time for hundreds and thousands of teachers. We are doing it to enhance the learning of tens of thousands and millions of students.

A correspondence course that is taken by 1,000 or 10,000 students annually is worth careful preparation. A textbook or programmed instruction course to be used by 100,000 or a million students over a period of a few years should be built scientifically.

Materials developed along such lines cost money but they are worth it. We can no longer be satisfied with 40 or 50 per cent learning when we can get much closer to 100 per cent.

## The Illiterates

The subject content of a literacy teaching programme should be based as far as possible on the social and economic needs of the illiterate. The aim of the curriculum must be to teach them how to read and write and to be able to preserve and develop their skills to their own advantage.

Literacy campaigns should be directed towards specific groups, e.g. farmers, who have realised the necessity for learning to read and follow out instructions in the use of fertilizers. The starting point must be the peoples' interests.

The teaching of facility with numbers must go hand in hand with literacy teaching.

Adult students, who successfully complete a literacy course, should be awarded a certificate.

## The Follow-up Programme

The Conference defined a literate person as one who could read and write a letter, read a paragraph in a newspaper, tell the time, count money and understands weight and measures. To keep these skills he must have access to and continue to read, newspapers, pamphlets and books.

The teacher is a vital link in this follow-up programme. People are not likely to read the most suitable publications and newspapers unless they have been first introduced to them by the teacher.

It is important that a follow-up programme should be closely linked with the national development plan and with the programme of community development. But if Government departments issue information it is desirable that it should be edited by educators concerned with literacy work.

If a language group is of a reasonable size then literature should be produced in the vernacular. Secondary schoolboys on holiday in Zambia have successfully been employed to translate books into very simple vernacular suitable for newly literate adults.

Follow-up literature must have the human touch. People want to read novels and stories as well as books on 'Know How'. The dialogue form and illustrations with local colour will also help to make the literature attractive. Short stories with a moral background are most effective.

Good follow-ip literature such as books, pamphlets and correspondence courses cannot be produced in too much of a hurry. Difficult vocabulary should be noted, if possible, by an African reader, and then changed for something more simple. If political pressure compels great haste, then a photographic process should be used for printing, which makes it possible to revise a publication by cutting out paragraphs rather than re-writing the whole book.

## The Literates

The education of edults should continue to the maximum possible level of attainment with particular regard to vocational training.

Such adult education programmes should include the following courses:

(a) courses up to Senior Secondary level followihg the normal syllabus for schools.

(b) courses up to university entrance level following a syllabus designed to meet the needs of mature adult students.

(c) courses providing specialist training for specific employment.

## Newspapers

Regional newspapers should provide reading material for new literates. The appropriate portion of the paper should be printed in type of varying size to bridge the gap between literacy primer and ordinary newspaper.

Regional newspaper could be made more attractive by the inclusion of more illustrated articles of local interest, by the inclusion of photographic strips.

## Posters

Posters should be used as follow-up material, they are NOT main educators. There must be some explanation before posters are handed out. Posters carry only ONE message. To be effective they must be very well designed.

lecture: TELEVISION IN THE EDUCATION OF ADULTS.

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## 1. The Impact of T.V. on Adults

(a) Getting on for 90% of homes in Britain have T.V. sets, and we spend on average 2 hours a day looking at them; there is no doubt of its impact. But it is not, I think, the ogre it is sometimes made out to be. At its worst it is what Jack Parr has called "chewing gum for eyeballs" - and there are many more toxic substances than chewing gum.

(b) We often deplore its quality, but the sensible question is not "How good (or bad) is this?" but "How much better (or worse is it than the activities (or lack of them) that it has displaced?". There is no evidence that T.V. is killing reading, outdoor activities and hobbies generally; indeed they flourish as never before. The things that are being displaced are pubs, films, spectator sports and sitting and looking in the fire.

(c) Nor is there any evidence that T.V. is in any sinister fashion controlling our behaviour or forming our opinions and attitudes. These are still formed in the face-to-face groups (family, village, workmates) where the reward of social approval can be given or with-held.

(d) But what T.V. is doing is, as it were, to write the agenda for the face-to-face meetings - to present the issues round which opinions and attitudes will crystallise. It is a wider agenda than ever before, for the immediacy of T.V. brings the whole world into our room; we see the Congo or the Berlin Wall, Sicily or India and we know in a new way what civil war is, or poverty. I cannot believe that this in the long run can do anything but increase understanding and tolerance.

(e) In the end T.V., like print or radio, is a neutral medium, though a more powerful one than either; it will serve whatever social purposes our societies set it to, nourish whatever convictions or illusions we cherish.

## 2. Informal Education

(a) I am not sure whether this is a very useful category. There is a continuum of T.V. programmes from the crudest variety show to the series on the calculus. Somewhere in the middle come things like serious plays, documentaries, discussions, political commentaries etc. I prefer to regard these as rational entertainment rather than informal education for I think that any self-respecting T.V. organisation ought to produce them as a matter of course - just as any self-respecting publisher puts out works of literature and scholarship as well as thrillers and romances.

(b) If we regard such programmes as rational entertainment then a passive audience is the appropriate thing. There's nothing wrong with this; Shakespeare and Beethoven also require a passive audience. If we regard them as informal education then presumably we want them to lead to action of some kind. For this group organisation is almost essential.

(c) Three kinds of group organisation can be used:

1. pre-existing groups (villages, clubs, occupational groups, educational institutions, etc.);
2. specially created local viewing groups;
3. specially created groups formed by linking (perhaps by correspondence) scattered individual viewers.

These are not, of course, mutually exclusive. And it should not be forgotten that the experience of watching the same programme at the same time can itself be the basis of a group consciousness.

(d) Different societies will demand different patterns of organisation. In Britain, where we tend to live semi-detached lives, with a set in every home, group listening was a failure and group viewing has hardly been tried; in Africa it may well be the norm.

If it is it will

1. encourage different methods of production from those of Europe, which are normally directed at the individual viewer;
2. make it easier for T.V. to serve public purposes rather than private entertainment;
3. also make it easier for T.V. to be used for purposes of propaganda, for the suppression as well as the dissemination of knowledge.

## 3. Formal Education

(a) The evidence of over 400 enquiries is indisputable; you can teach by T.V. anything that you can teach in a classroom, and students will learn just as well from T.V. as from normal teaching - perhaps a little better.

(b) There is in most countries a shortage of teachers, in all countries a shortage of good teachers. Obviously T.V. and video-tape can spread the work of the good teacher much wider - over a whole country if need be. There is evidence too that the great technical resources of T.V. and the time available for the preparation of a T.V. course make the good teacher teach better.

(c) The weakness of T.V. teaching is of course its inflexibility; it has to be centrally planned to meet a sort of highest-common-factor of educational demand, and must be locally adapted to local needs. This inflexibility can be mitigated if T.V. programmes are continually modified during production by feedback from students.

(d) But nobody will learn anything by looking at a T.V. screen; learning takes place when students themselves engage with the subject, try using new skills and concepts, think and read round them, make mistakes and correct them. If we cannot build T.V. teaching into an educational process of this kind we might as well forget about it.

(e) Since T.V. is a random distributor of sounds and images the first thing we must add to it is a form of teaching which can follow it into every home and group in the country. Correspondence tuition is the obvious and the only answer. Indeed I am inclined to say that the future of educational T.V. depends upon the development of carefully programmed correspondence courses. I am sure that we must take correspondence teaching seriously (as it is taken seriously, for example, in Scandinavia and the U.S.S.R.) and that we cannot leave it in the hands of commercial interests.

(f) To this we must also add where we can the stimulus of working in groups (which can greatly strengthen students' motivation) and of face-to-face meetings with tutors - both those who are engaged in the correspondence teaching and other locally recruited tutors wherever possible.

(g) T.V.-plus-correspondence will need fewer tutors than conventional teaching but they still have to be found; in the U.S.S.R. a small amount of this kind of teaching is a normal part of the duties of all teachers in institutions of higher education.

(h) The important thing is that this should be thought of and planned as a total teaching process involving T.V. programmes, correspondence lessons and exercises, supplementary reading or practical work, group tasks, face-to-face contact with tutors, and the necessary equipment and material for all these - not as the provision of supplementary material for T.V. courses. For the pivot of the course, the point at which learning takes place, is much more likely to be the weekly exercises and group discussions rather than the T.V. programmes.

(i) This is not to imply that one could do without the T.V. It has three essential functions to perform:

1. It is the starter; many thousands of potential students who could not or would not join conventional courses (even if they could be offered) will join a T.V.-based course.
2. It is the pace-maker; it can set a pace and keep it with a sense of urgency not possible to ordinary correspondence courses. For this reason it is perhaps best used in short bursts.
3. It is the link; whatever other groups may exist or be formed a sense of common purpose is engendered in all those who regularly watch the same programme.

(j) I know that this kind of thing can be done because we have just completed, I think successfully, the first experiment of this kind in Britain. We have been teaching economics to 1500 students, most of them starting from scratch. Our tools included 13 T.V. programmes, a substantial handbook, weekly postage-prepaid exercises (marked partly in a central office and partly by local tutors), weekly reading guides enabling students to use any one of sixteen different textbooks, two meetings with local tutors, a weekend school, and a careful record of errors and misunderstandings for feed-back into the T.V. programmes as they were being produced. Most of these students would not have been recruited into normal classes, and most of them worked with astonishing diligence and zest; 1200 of them were still in the ring at the tenth week. The cost was not much greater than that of conventional teaching; done on a larger scale it would be less.

(k) My assignment is educational T.V. But I must add that almost everything in this section could stand if "sound radio" were substituted for "T.V." throughout, and that, in spite of its obvious limitations as compared with T.V., sound radio would in some circumstances be the more appropriate medium.

## 4. Commercial Interests and the Educational Needs of New Nations.

(a) The reconciliation of these two is initially in the hands of whatever agency of government grants licences to broadcast; presumably the granting of a licence would carry an obligation to set aside a certain amount of time for educational purposes.

(b) But I do not think that we should assume that these two will necessarily be difficult to reconcile. After all the commercial company and its advertisers must build up for themselves an accepted and approved public image. To do this they must accept and reflect the values and the purposes of the society out of which they hope to make profits, and if educational development is one of these socially accepted purposes it will be willingly served.

(c) The Nottingham experiment was conducted with a commercial company and our experience was that once the principle was established and air-time and staff made available to us we were then given complete freedom of action in scripting and producing the programmes - even though we were often dealing with politically contentious subjects.

(d) A publicly-owned T.V. service may be freer and more inventive than a commercial service, but it is not necessarily so. It too is subject to pressures, though different ones.

## 5. Technical and Organisational Problems.

(a) It is my conviction that educational T.V. ought to be in the hands of educators, not of broadcasters. Their standards of judgment will be their own; does this teach well? how much learning has it promoted? of what kind? The broadcaster on the other hand sees the programme as an end in itself, an artefact to be judged rather as one would judge an art film; is it good T.V.? This is why some educational T.V. in Britain has degenerated into educational showbiz. Good T.V. may be bad teaching, and vice versa.

(b) The educator, too, will be able to co-ordinate T.V. with other teaching media in a combined operation and to relate the resultant courses to existing needs and institutions in a long-term educational strategy.

(c) He will need courage, whether he is asserting a claim for independence or working with broadcasters in some advisory capacity, for his confidence will be assailed by much talk of the technical mysteries and astronomical costs of T.V.

The techniques are not nearly as difficult as they are made to seem. The costs are, of course, high - and for some purposes sound radio would be a cheaper and more sensible choice - but here again there is a good deal of mystery-mongering. What overheads are included, for example, in the B.B.C's figure of £3,430 per hour for schools T.V.? (A point to watch when negotiating with commercial companies.) How do we reconcile this with the budget of £400 per hour for some other (admittedly very simple) educational programmes?

(d) Certainly costs are such as to make it impossible to think of, say, complete degree courses being covered by T.V.-based teaching. The numbers involved may not be large enough to justify the expenditure. Anyway, if there is only one channel there are not enough broadcasting hours available; if a station were to be given over to educational T.V. entirely and if it were to broadcast twelve hours a day seven days a week it could still do only 4,380 hours of teaching a year; a medium-sized Technical College will do this in a month. For this, and other, reasons T.V. would best be used in short intensive bursts aimed at large audiences - with radio, correspondence and local teaching to follow on and take the strain. (This again needs careful planning by educators who are in touch with the whole educational system.)

(e) What I should like to see established, certainly in Britain and perhaps elsewhere, is some national machinery for the use and development of long-distance teaching media of all kinds T.V., sound-radio and correspondence. It might be called the College of the Air, or the National Teleteaching Institute or the National Centre for Educational Television and Radio. It would

1. research into local and national educational needs to find the points at which T.V. or radio-based courses of a basic or highest-common-factor kind could best be injected;
2. plan (at least a year ahead) T.V. and radio-based courses with all the accompanying teaching material.
3. build up a correspondence college and a panel of tutors.
4. co-operate with the broadcasting organisations to produce the programmes and with local educational institutions to provide face-to-face meetings and follow-up;
5. build up a library of video-tapes, sound tapes and films;

6. encourage, help and co-ordinate locally and regionally based courses of this kind.

This sounds visionary, but the establishment of at any rate the first stage of such an institution in Britain is I think a real possibility - balance of payments permitting!

# lecture: THE ELEMENTS OF COMMUNICATION.

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1. **Introduction:** The theme of our conference has been 'The Use of the Mass Media in the Education of Adults'. We have studied the various media of communication and seen that each has powers and limitations.

What power? How effective? How efficient? What capacity? Are there some bases for comparison? Can effect be measured? These are some questions which have been posed.

This final paper of the conference attempts to draw together many of the thoughts propounded in other papers and brought out in discussion. All the media so far studied separately will be considered together as means of human communication. Hypotheses will be presented for discussion in an attempt to answer some of the questions posed above.

2. **Warning:** Human communication is a vastly complex process. It defies universal definition. In the analysis and study of its elements one must needs generalise and simplify. Herein lies danger.

The thesis of this paper is based upon analogy. The laws and measurements of telecommunication theory can be partially applied to the theoretical study of other media of communication. The analogies presented here should not be taken too literally or applied too finely.

3. **Difficulties of Definition:** 'Information' has different meanings to the journalist, the teacher, the telecommunications engineer. Communication is not the same thing to the person engaged in conversation as it is to the student of linguistics; to the participant as it is to the observer. See figure 1.p94. The act of communication between A and B is through an object-language, an object-channel, an object-medium. Study of that act by an observer (C) is through a meta-channel. C then analyses, abstracts, categorises, and expresses his observations in a meta-language, which bears little relationship to the communication object-language. In this paper we are not even considering object-channels but merely meta-abstractions of those object-channels. Herein lies further danger.

4. **Language as basic communication.** In meta-language any human object-language can be analysed into systems of signs. Man is a user of signs in great variety - gestures - sounds - letters - words - symbols - pictures - etc. The study of the whole broad field of signs is called 'semiotic' (See figure 2)p95. Semiotic can be defined as having three different but interpentrating levels:-

(a) Pragmatics (signs in relationship to users)

(b) Semantics (relationship between signs and designata)

(c) Syntactics (pure signs and their relations to each other).

5. **Semiotic in other means of communication.** Means of communication other than language can be subdivided according to semiotic classification. Films, radio and television, for example, each have a syntax - a grammar of construction - in which different devices of conjunction (e.g. cross fades, dissolves, cuts, long fades, bridge music) determine a meaning by fixing a relationship between signs. To a new audience this syntax may be foreign and meaningless.

At the semantic level signs may be presented which relate to designata unknown to the audience.

The efficiency of communication through any medium will be determined greatly by the degree of empathy between communicator and audience. This must be based upon firm knowledge by the communicator of the actual meaning of the signs he uses to the receiver, especially at the semantic and syntactic level.

All communication involves complicated coding of information before transmission. Too often we forget to explain the code necessary to the receiver if he is to grasp our message.

6. **Information defined as novelty.** In telecommunication theory the definition of information entails the concept of novelty. A sign repeated for clarity of meaning is a redundant sign and would not be classed as one containing information.

Telecommunication theory divides information into 'bits' (or binary digits): That which can be transmitted in a yes/no manner. The computer works in this pulse, no pulse manner. The yes/no is the atom of information. In this way the information capacity of any medium could be computed by determining how many atoms or 'bits' of novel yes/no information it is capable of carrying in a unit of time. (see figure 3)p95.

7. **The Selection of signs.** To the student of communication the atomic binary structure of information has little possibility of practical application. The signs used by the film-maker, the broadcaster, the newsman, the teacher are compounds rather than atomic elements.

These compounds may be in the form of spoken words composed of sounds; written words compounded of letters; symbols formed from light and shade; pictures composed of elemental colour grains; gestures of the body and movements of objects, etc.

From a vast array of compound signs a communication is selected. Some are more frequently used than others. The receiver has his own library of signs and through experience he can guess the probability with which certain signs will occur in certain sequences; that certain sequences of signs will convey an expected message. The receiver must have the experience to discriminate between signs if true communication is to take place; he must be able to select almost the same signs which match those transmitted in signal form.

8. **'Noise' Factors** In electronic equipment 'noise' is introduced by random Brownian movement of electrons within the electrical components and in the ether. 'Noise' limits communication.

Conversation at a cocktail party is hampered by noise. The quality of a T.V. picture can be broken by white 'noise' spots. A mains hum in a radio can limit understanding of a broadcast.

But 'noise' in the form of extraneous interference can be seen to effect all forms of communication. Some media are more subject to interference than others.

9. **Redundancy factors** In telecommunication redundant signs are added to signals to overcome noise. The five pulse system of the teleprinter, for example, adds one extra redundant pulse to avoid any confusion between received signs caused by noise. Any repetition of signs for clarity of meaning or accuracy of reception is introducing redundancy.

In language we always employ redundancy for stress or increase of comprehension of meaning. Redundant signals are employed in all media of communication. They add no true information. They merely extend the time taken to communicate.

The communicator must decide upon what degree of repetitious redundancy is necessary to overcome noise and to clarify meaning. He must balance this against the time allowed for the communication.

10. **Bandwidth in telecommunication.** The more information a medium is capable of transmitting in a unit of time the greater the bandwidth necessary to carry that information. Relative bandwidths of media are shown in figure 4p96.It will be seen that the teleprinter dealing with only a few letter signs needs only a tiny bandwidth of 120 cycles per second, whereas the spoken and music sounds of radio spread over a bandwidth of about 20,000 cycles per second.

The bandwidth required to send still pictures by picture telegraph is about 1000 cycles per second whereas the moving visual information of television cannot be contained in a bandwidth of less than 3,000,000 cycles per second. But the still radio picture takes at least 2 minutes to transmit while at least 3,000 single frames of television can be transmitted in the same time.

11. **Bandwidth x Time = Information** The information capacity of any medium can be expressed as a multiple of the bandwidth of the medium and the time taken to communicate.

The information capacity of a teleprinter is small since the bandwidth is small and a relatively short time is taken to transmit a single message even in single letters spelled out.

Human conversation can provide a standard against which to judge the effective bandwidth of various media. By this standard the bandwidth of the printed word is narrow but the time factor is larger.

Sound film and television both have very wide bandwidths and hence have large information capacities.

12. **Power.** Power is a measurement of amplitude of signals. In communication power determines distance and spread of information. Power is not a factor of bandwidth and therefore has no effect on information content. The 'power of the press' lies in its ability to cover distance and to multiply its message effect to millions of readers. But the information is not multiplied. If one reader bought every copy of a newspaper he would get no more information, but redundancy would be increased a millionfold.

The power of human conversation is tiny compared with radio. The multiplication factor is virtually nil, but the cybernetic feed back potential is very large. Hence the effectiveness of human conversation to achieve understanding.

13. **Relative effectiveness of media.** Without any attempt at mathematical or statistical accuracy the relative efficiency of any medium in any country can be estimated as a simple multiple of the bandwidth of the medium, the time of transmission, the effective power, and the multiplication factor of distribution divided by the noise factor.

Thus:- $E = \frac{B \times T \times P \times X}{N}$

By giving relative numerical values to the factors in the equation rough indices of relative effectiveness of the various media in any country can be computed. These indices for Zambia at the present time would be approximately:-

| | |
|---|---|
| Press | 1.0 |
| Radio | 2.9 |
| T.V. | 2.0 |
| Film | 0.9 |

Such an index does not reflect the difference between urban and rural areas, nor does it take into account the suitability of information presented for the diverse audiences which make up the population. Noise factors have not been included in the calculation.

14. **Effectiveness relative to cost.** An index of cost for the mass media in this country can also be estimated. This would include both capital and recurrent costs per unit audience. A rough relative cost index for Zambia is as follows:-

| | |
|---|---|
| Press | 5 |
| Radio | 3 |
| T.V. | 20 |
| Film | 7 |

By relating relative effectiveness to relative cost the following indices are obtained:-

| | |
|---|---|
| Press | 4 |
| Radio | 20 |
| T.V. | 2 |
| Film | 3 |

However, it is not always wise to balance information capacity too severely against financial outlay. Radio may be efficient by the definition above but its limited bandwidth must not be forgotten. The index for press is at the moment small but with increases of circulation due to increased literacy and earning power and better distribution the index could be doubled. Community television would lower the cost index considerably and thus raise the efficiency/cost index.

15. **Effectiveness relative to learning.** To the educator the practical effectiveness of media relative to learning is much more important than theoretic measures in terms of 'bits of information'. To the extension agent, learning can only be proved by change of behaviour.

Little research on effective learning has been carried out locally, but from the United States and India statistical evaluations of various extension media have been published. The results are interesting even if not directly applicable to this continent or country.

For example, in agricultural extension in the Tennessee Valley 34% of behaviour change could be attributed to individual contacts; 40% to group contacts; 26% to mass contacts.

However, individual contacts required 41% of extension funds; group contacts 33%; and mass contacts only 16%.

This gave an effectiveness/cost index of 159 for mass contacts against 120 for group contacts and only 82 for individual contacts.

16. **Sum effectiveness of combination and of media.** In India the Tala Institute evaluated behaviour change in anti-malarial practices engendered by the use of various numbers of media:-

1 medium - 38% learning
3 media - 61% learning
6 media - 76% learning
8+ media - 95% learning

When various media are giving the same message, of course, the information content is relatively small compared with redundant signs. But redundancy in the form of repetition through various media, although time consuming and costly, does ensure the widest possible bandwidth and have a most important influence on actual mass learning.

The extension of time involved also allows the communicator to plan his education as a campaign involving motivation, learning follow up and support. Too often, through lack of time, teaching is not preceeded by motivation and thus little learning takes place.

17. **The human factor.** At the beginning of this paper a distinction was drawn between qualitive and quantitive statements regarding the communication process; a warning against rushing in and applying mathematic theory too strictly to human communication.

How can one firmly apply a selective basis to quantative measurement of bits of information conveyed by signs when no two individuals have the same vocabularies of signs.

A man has remarkable powers of learning. Every communication, every perception adds to his accumulation of experiences; he is continually becoming a different person. How does one evaluate an organism which is continually in a state of change?

A man thrust into a society which speaks a foreign language learns that language by experience, firstly at a pragmatic and then semantic level. Syntactical signs must also be recognised by experience or fluent communication is impossible.

The same situation arises when mass media having their own syntax and sementics are employed among an unsophisticated people. But communication must be incomplete while the audience is "learning the language".

18. **Non-co-operative links.** Conversation is a two way process; a co-operatige link exists between the communicants. In the mass media the feed back link is virtually non existant. The mass media are non-co-operative links.

The possibility of communication with a distant planet provides an example of non-co-operative communication. What can we assume to exist in common between earth and the foreign planet that can serve as initial signs and rules, to build up a common language? The signs we each possess will depend upon our individual experiences. Concepts are dependent upon the change of history and geography and culture. How can we communicate?

Above, carried to its ultimate conclusion, is the problem that faces the communicators through the non-co-operative links of the mass media.

### 19. The elements of communication.

The atomic elements of communication are signs. Media of large bandwidth can pass a larger variety of signs providing more stimuli to the receiver organism. The larger the power and the multiplication factor the larger the spread of information. But when the power increases the link becomes more non-co-operative Information is decreased by 'noise' which can be overcome by redundant signs.

Many media increase redundancy but increase learning because of extension of both bandwidth and time, and through conditioning by repetition. The effectiveness of communication depends upon all these variables and also upon a common vocabulary of signs (considered at all semiotic levels) between the communicator and his audience.

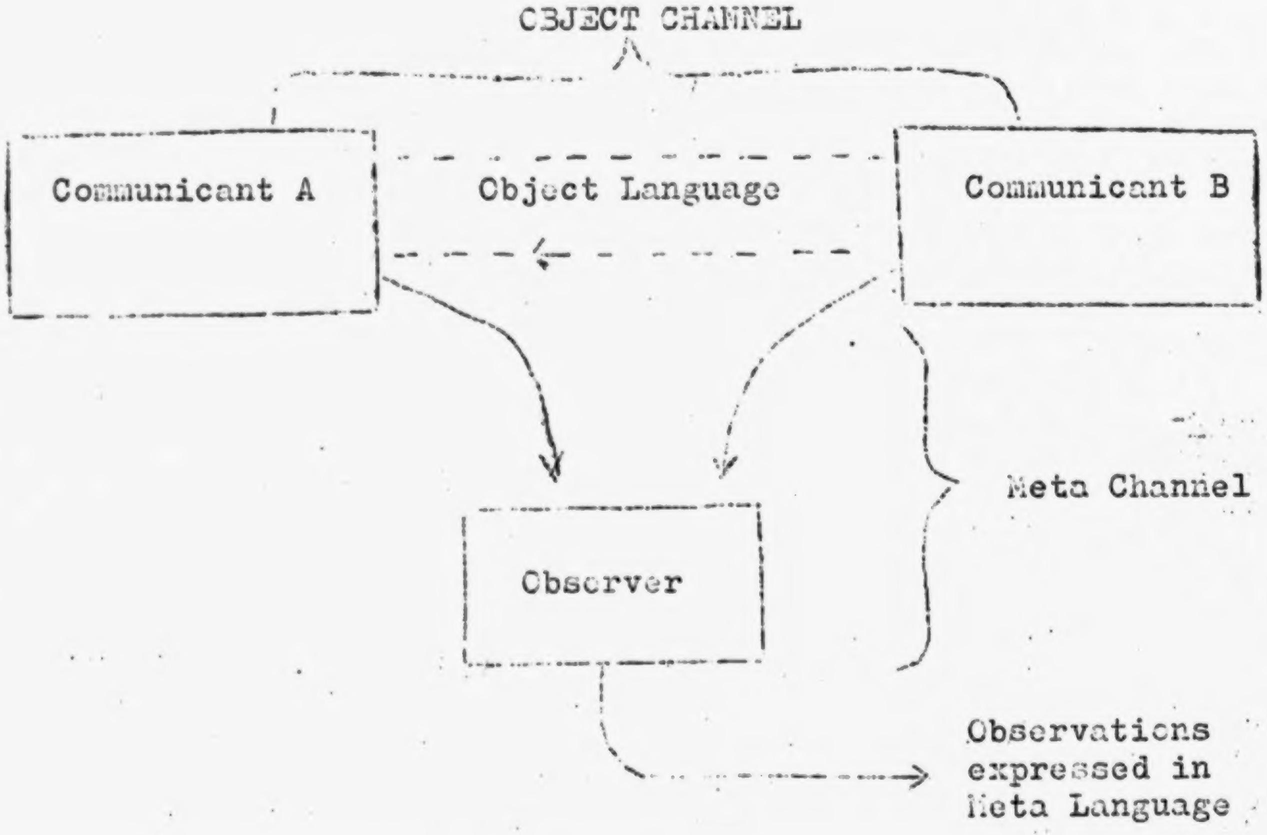

OBJECT CHANNEL
Communicant A
Object Language
Communicant B
Meta Channel
Observer
Observations expressed in Meta Language

FIGURE 1.

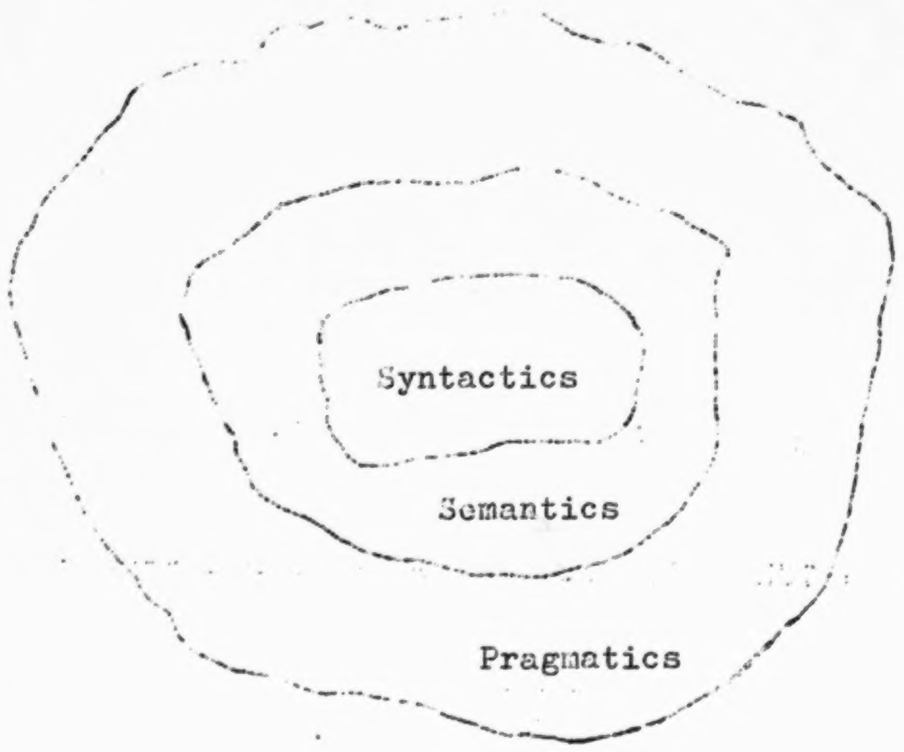
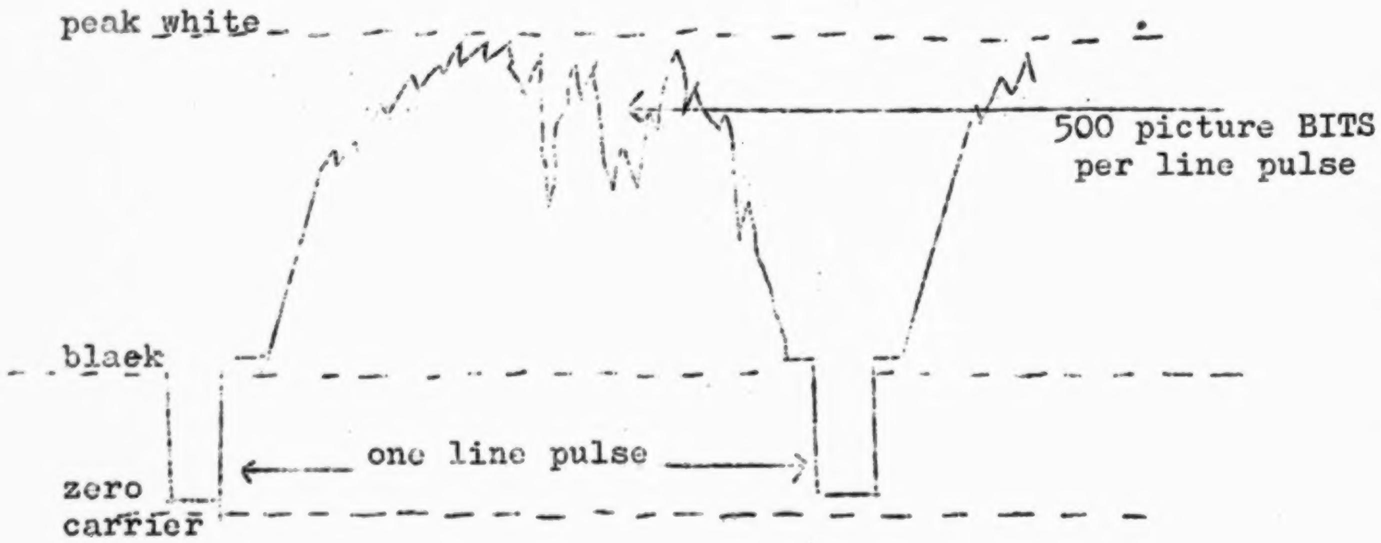

Syntactics
Semantics
Pragmatics

FIGURE 2. SEMIOTIC CLASSIFICATION


peak white
500 picture BITS per line pulse
black
one line pulse
zero carrier

377 information lines per 1/25th of a second

Information = 377 x 500 x 25 = 4,750,000 BITS per second.

FIGURE 3.

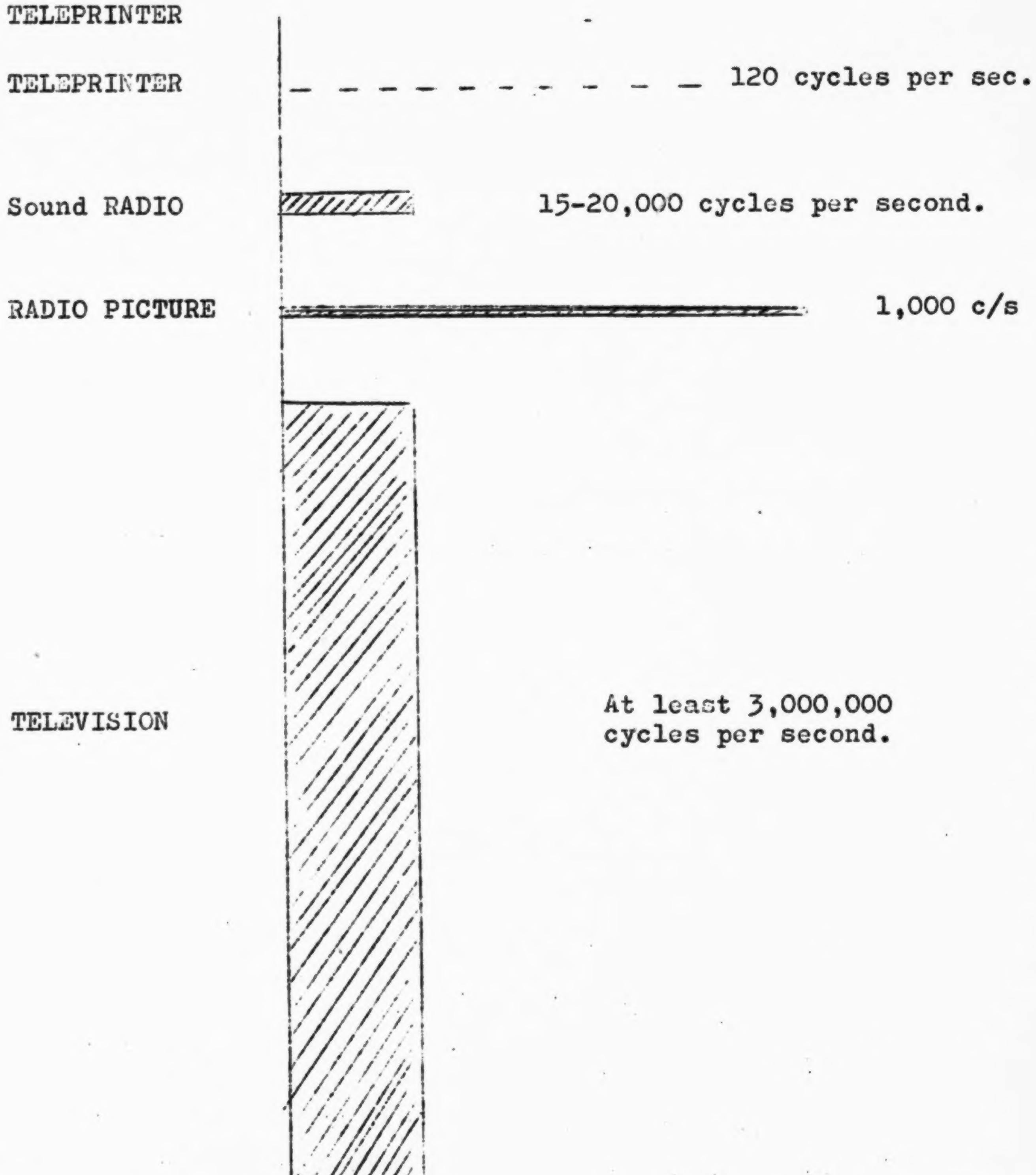


FIGURE 4. Relative bandwidths required by various Telecommunications media.

appendix A

## THE FORMATION OF THE ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA.

Minutes of Conference Business Meeting held on 7th January 1965.

In the Chair H. Noak.

1. A proposal to form the "Adult Education Association of East and Central Africa" was placed before the Meeting and disucssed.

   RESOLVED UNANIMOUSLY

   "That the A.E.A.E.C.A. as set out on the accompanying document be formed to promote the interests of adult education in East and Central Africa."

### THE ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA.

a) Those attending the Conference "The Use of Mass Media in the Education of Adults" (and whose names are set out in appendix B below) have agreed to form an Association of adult educators hereinafter referred to as the Association.

b) The objects of the Association shall be to encourage the study of problems connected with the education of adults, organisation of an annual conference and the production of a newsletter.

c) The annual subscription of 5/- for private members and £1.0.0. for organisations shall be payable in advance on or before the 1st March of each year. The payment of this subscription shall constitute Membership of the Association.

d) The members of the Association accept this document as it stands and the incoming Committee shall prepare a constitution for the next conference.

e) The Association may subscribe to or enter into correspondence with any other body having similar aims and interests.

f) The officers of the Association shall consist of a Chairman, Secretary/Treasurer and Corresponding Secretaries in each country or region as required. The duties of the Corresponding Secretaries shall be to gather information and to advise the Secretary/Treasurer on request.

g) The Chairman shall gather such funds as are required to hold the annual conference.

h) The Chairman shall have the custody of the funds of the Association and present a statement of accounts annually to all members.

2. Election of Chairman:

RESOLUTION

> "That a Chairman be elected and that he be given the power to appoint a Secretary and such other officers as may be necessary".

It was unanimously agreed that Mr. R. Prossor be elected Chairman for the ensuing year.

## FIRST MEETING OF THE "ADULT EDUCATION ASSOCIATION OF EAST AND CENTRAL AFRICA".

Chairman R. Prossor.

1. Suggested Themes for 1966 Conference:

   a) Techniques of Adult Education.

   b) Teaching English to Adults.

   c) Standards and Tests used in examining Adults.

   d) Adult Education and Agriculture.

   e) Organisation of Adult Education in East and Central Africa.

   f) Organisation and Administration of Literacy Programmes.

2. 1966 Conference:

RESOLUTION

> "That the next conference (1966) be held in Nairobi, if possible, and that the Chairman choose a suitable theme from the above suggestions, bearing in mind the wishes of the Conference".

(Carried Unanimously)

3. 1967 Conference:

RESOLUTION

"That the 1967 conference be held in Kampala, if possible, and that the Chairman choose a suitable theme and report progress to the 1966 conference".

(Carried Unanimously)

4. The following Corresponding Secretaries were elected unanimously:-

| | |
|---|---|
| UGANDA | CLARKE R.<br>P.O. Box 454, Mbale. |
| KENYA | PROSSOR R. (Chairman)<br>P.O. Box 30197, Nairobi. |
| TANZANIA | KIAMA M.<br>Tanzania Broadcasting Corporation<br>P.O. Box 9191, Dar-es-Salaam. |
| ZAMBIA | NOAK H.<br>P.O. Box 29, Lusaka. |
| S. RHODESIA | TOWNSEND-COLES E.<br>P.Bag 167 H, Salisbury. |
| BASUTOLAND | SANGWENI S.<br>U.B.B.S. Extension Department,<br>P.O. Roma via Maseru. |
| SWAZILAND | MDINISO M.<br>P.O. Box 64, Mbabane. |
| BECHUANALAND | ATKINSON R.E.H.<br>P.O. Box 10, Mahalapye. |
| MALAWI | KAYE A.<br>P.O. Box 710, Blantyre. |

End of Meeting.

appendix B

## LIST OF CONFERENCE PARTICIPANTS

| | | |
|---|---|---|
| Atkinson Ralph E.H. | P.O. Box 10, Mahalapye, Bechuanaland. | Senior Agricultural Officer, Ministry of Agriculture. |
| Brownjohn W. | Ministry of Lands and Natural Resources, Zambia. | Forrester, Ministry of Lands and Natural Resources. |
| Clarke, R. | P.O. Box 454, Mbale, Uganda. | Resident Tutor, Makerere University College, Dept. of Extra-Mural Studies. |
| Cripwell Kenneth R. | P.O. Box 136, Kitwe, Zambia. | Senior Fellow and Director of Education T.V. Research. |
| Coppen H. Mrs. | University of London Inst. of Education, Malet Street, London. W.C.1. | Lecturer, Institute of Education. |
| Mrs. Cliff | Correspondence School, College of Further Education, P.O. Box 29 Lusaka, Zambia. | College of Further Education. |
| Cunningham G.L. | P.O. Box 9193, Dar-es-Salaam, Tanzania. | Principal, Kivukoni College. |
| Delahunty Patrick. | P.O. Box R.W.93, Lusaka, Zambia. | E.O.(Audio Visual Aids) Ministry of Education. |
| Donnolly Dr. F.A. | P.O. Box 789, Lusaka, Zambia. | Medical Officer of Health and Director of Housing and Welfare, City of Lusaka. |
| Gabaake Jeremiahs B. | Gaberone Camp School, P.O. Box 510, Gaberone, Bechuanaland. | Head Teacher, Department of Education. |
| Grose D. | Ministry of Education, Ndola, Zambia. | Adult Education Officer, Ndola. |

| | | |
|---|---|---|
| Grenville-Grey W. | Mindolo Ecumenical Foundation, Box 1192, Kitwe, Zambia. | Lecturer, National Development. |
| Hall P.R. | P.O. Box 69, Lusaka, Zambia. | Secretary, Natural Resources Board. |
| Heidermann Horst | Koblenzer Strasse 54, Bonn, Federal Republic of Germany. | Director of Research Institute. Friedrich Ebert Foundation. |
| Heron Professor A. | P.O. Box 900, Lusaka, Zambia. | Director, Rhodes Livingstone Inst. for Social Research. |
| Kiama Martin | Tanzania Broadcasting Corporation, Box 9191, Dar-es-Salaam, Tanzania. | Education Broadcasting Organiser, Broadcasting Corporation. |
| Kempfer Dr. Homer D. | A.I.D., Washington, U.S.A. | Chief Education Division. |
| Kaiser Gunter. | P.O. Box 1373, Lusaka, Zambia. | Broadcasting Consultant, All Africa Church Conference. |
| Kaye Albert E. | P.O. Box 710, Blantyre, Malawi. | Principal, Malawi Correspondence College, Ministry of Education. |
| Koske Richard A. | Voice of Kenya, Box 30456, Nairobi, Kenya. | Director of Broadcasting Information, Broadcasting and Tourism. |
| Lancaster Colin. | P.O. Box 1990, Lusaka, Zambia. | Tutor in charge, Administration Training Department |
| Lewis D.J. | P.O. Box R.W.38, Lusaka, Zambia. | Ministry of Information and Postal Services. |
| Marsh G. | P.O. Box 789, Lusaka, Zambia. | Senior Housing and Welfare Officer, City of Lusaka. |

| | | |
|---|---|---|
| Masiye S. | P.O. Box R.W.15, Lusaka, Zambia. | Zambia Broadcasting Corporation. |
| Mdiniso Martin | Swaziland Sabenta Society, Box 64, Mbabane, Swaziland. | Swaziland Sabenta Society. |
| Muriuki Godfrey. | P.O. Box 92, Kikuyu, Kenya. | Tutor, Department of Residential Adult Education, Kikuyu. |
| Mokaila D.M. | P.O. Box 63, Lobatsi, Bechuanaland, Southern Africa. | Broadcasting Officer, Information. |
| Malinki K.T. | Anglo American Corporation, P.O. Box 1986, Lusaka, Zambia. | Public Relations Officer. |
| Mkwawa G.M. | Community Development Training Centre, Tengeru, Box 3081, Arusha, Tanzania. | Principal, Community Development and National Culture. |
| Mukibi E.K. | P.O. Box 92, Entebbe, Uganda. | Community Development Officer (Training Officer). |
| Ngosi A.G. | Ministry of Agriculture, Lusaka, Zambia. | Ministry of Agriculture. Dept. of Economics and Marketing, Box 1957, Lusaka. |
| Njovu A.G. | National Head-Quarters, Voice of U.N.I.P. Box 302, Lusaka, Zambia. | Assistant Editor, Voice of U.N.I.P. |
| Noak Hans. | Dept. of Extra-Mural Studies, Box 29, Lusaka, Zambia. | College of Further Education, Lecturer, E.M.S. |
| Oxenham J.P. | Community Development, Box 1958, Lusaka, Zambia. | C.D.O. (Literacy and Visual Aids). |
| Ponsonby Miss E. | P.O. Box 789, Lusaka, Zambia. | Health Educator, City of Lusaka. |

| | | |
|---|---|---|
| Prossor Roy. | P.O. Box 30197,<br>Nairobi, Kenya. | Director E.M.S., University College, Nairobi. |
| Parr M.W. | P.O. Box 802,<br>Lusaka, Zambia. | Librarian, Zambia Library Service. |
| Senior M.M. Miss | P.O. Box 1489,<br>Kitwe, Zambia. | Literature Secretary, Christian Council of Zambia and Editorial Secretary, United Society for Christian Literature. |
| Skellon Dr. J.H. | Ministry of Education,<br>P.O. Box R.W.93,<br>Lusaka, Zambia. | Adviser for Further Education. |
| Simpelwe S. | Game and Fisheries,<br>P.O. Box 1,<br>Chilanga, Zambia. | Game Ranger, Natural Resources. |
| Sangweni Stanislaus. | U.B.B.S. Extension Dept. P.O. Roma,<br>via Maseru,<br>Basutoland,<br>Southern Africa, | Assistant Director of Extension for Swaziland. |
| Sinclair D. Michael | P.O. Box 295, Dept. of Extra-Mural Studies, Livingstone,<br>Zambia. | Lecturer, Department of Extra-Mural Studies. |
| Tidder A. | Councillor, Lusaka City Council, Lusaka,<br>Zambia. | City of Lusaka. |
| Temu Mr. | College of Social Studies, Box 92,<br>Kikuyu, Kenya. | Tutor - Department of Residential Adult Education. |
| Messiter-Tooze C.R. | P.O. Box 1505,<br>Ndola, Zambia. | Group Education and Training Adviser, R.S.T. Group of Companies, Zambia. |
| Us N. | Ministry of Education, Box 394,<br>Zanzibar. | Ministry of Education. |

| | | |
|---|---|---|
| Wakunguma Muyunda W. | P.O. Box 2072, Lusaka, Zambia. | Ministry of Education |
| Willings John W. | P.O. Box 29, College of Further Education, Lusaka, Zambia. | UNESCO Technical Assistance Expert in Audio Visual Aids and Mass Communication Media. |
| Wiltshire Harold C. | University of Nottingham, Dept. of Adult Education 14-22 Shakespeare St. Nottingham. U.K. | Director, Department of Adult Education. |
| Wass Peter. | P.O. Box 80, Lobatsi, Bechuanaland. | Social Welfare Officer, Local Government Division, Bechuanaland Government. |
| Semple Mr. | Deputy Provincial Education Officer, Western Province, Ndola, Zambia. | Ministry of Education. |

THE SCIENTIFIC FILM ASSOCIATION
55a, WELBECK STREET, LONDON W.1.
Telephone WELbeck 0758

VIEWERS' REPORT FORM

Confidential

Title of film:

Date: Panel:

YOUR COMMENTS, recorded on this form, will serve as a guide to the collator who writes the final appraisal. Please be as informative as possible.

1. GENERAL OPINION. Give your impression of the film as a whole

2. AIM. What do you think is the purpose of the film?

   Has this been achieved?

3. FACTUAL CONTENTS. Have you any comments on the INFORMATION contained in the film? Consider:- accuracy, up-to-dateness, bias in the selection of facts, significant omissions or irrelevancies.

4. PRESENTATION. What do you think of the way in which the information is presented?

   Consider:-

   (a) length of film, selection of shots and balance between sections.

   (b) clarity of exposition, rate of development and use of recapitulation.

(c) effectiveness of diagrams or models, and of black-and-white or colour.

(d) whether the film carries conviction.

5. CINEMATIC QUALITY. Have you any comments on the production techniques?

Consider:-

(a) the picture, bearing in mind the photography, camera viewpoint, editing and continuity.

(b) the captions and diagrams, bearing in mind the clarity, layout and time allowed for absorbing information presented.

(c) the sound, bearing in mind the audibility, delivery and choice of words, relation of sound to visuals and music.

6. AUDIENCE. For what audience do you think the film most suitable?

Mention other possible audiences and uses (e.g. in industry, in education training or, for general audiences).

---

7. ANY OTHER COMMENTS:

---

Name of Viewer.

Qualification with reference to this film.

APPRAISAL

The Ruthless One.
16mm. sd. colour. 20 mns.
produced by the Shell Film Unit
available from the Shell Film Library.

Great Britain and East Africa.
1958.

Contents.

The title refers to the arabic name of the desert locust. Some of the material for this film was gathered at the time the film THE RIVAL WORLD was being produced, by the same film unit. The major portion is devoted to a study of the life cycle of the insect, with close-up magnified views of the body structure, mating, ovulation, hatching and developmental stages of the hopper, mostly taken in the laboratories of the locust research station in London. The last seven or eight minutes deal with the work of field locust control centres and the activities of the research centre. In the commentary stress is laid on the importance of destroying hoppers and of collecting information about breeding areas, which are indicated on a world map.

Appraisal:

It is disappointing to find so little indication of the devastation this insect causes and the control measures in use today. Because the major portion of the film is taken up with a study of the life cycle, the short time devoted to control measures would fail to impress the urgency of the problem on an audience unfamiliar with this scourge. However the detailed studies of the insect are admirable, distinguished by remarkable photographic observation and excellent colour. For some the sound track is not entirely satisfactory, the music seeming harshly insistent and the commentary not always well integrated with the visuals. These minor defects do lower the general level of excellence achieved by the scientific observation in the core of the film.

Audience:

For use in teaching biology at the secondary level the material is unexceptional and the omissions in the coverage of the subject as a whole can be made good by a competent teacher.

In any other situation some thought would have to be given to the level of education, the interests and the comprehension of English of the audience. It would probably be unsuitable for mass audiences in rural Africa to whom the lack of precise information or control measures would be especially worrying. For many, the magnified views of the parts of the locust would be puzzling and certainly the final sequences in the research laboratory quite meaningless.

Appraised January 1965, Lusaka Zambia.
By: Conference on Mass Media in
the Education of Adults.

appendix D.

# A short Bibliography of books, pamphlets and periodicals on Adult Education with particular reference to the Use of Mass Media in the Education of Adults. This collection was made for the purpose of the conference "The Use of the Mass Media in the Education of Adults".

edited by HANS NOAK
Department of Extra-Mural Studies.

&

MOREA PARKER
Librarian
Evelyn Hone College of Further Education.

published by:

The Department of Extra-Mural Studies,
Evelyn Hone College of Further Education,
P.O. Box 29, Lusaka, Zambia.

Lusaka 1965.

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| YOUNG K. | Handbook of social psychology. Routledge & Kegan Paul, 1946 | 301.15 |
| SPICER E.H. | Human problems in technological change: a casebook. New York, Russell Sage Foundation, 1952 | 301.3 |
| HALL M. | The social services of modern England. Routledge & K. Paul, 1959 | 360.942 |
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| KINDER J.S. | Audio-visual materials and techniques. New York, American Book Company, 1959, 2nd edition | 371.33 |
| WITTICH W.A. and SCHULLER C.F. | Audio-visual materials: their nature and use. New York, Harper, 1957 | 371.33 |
| BRITISH INSTITUTE OF ADULT EDUCATION | Adult education after the war: report of an enquiry made for the British Institute of Adult Education O.U.P., 1945 | 374 |

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| PEERS R. | Adult education: a comparative study. London, Routledge & K. Paul, 1959 | 374 |
| RAYBOULD S. | The English universities and adult education. London, The Workers' Educational Association, 1951 | 374 |
| EDWARDS H. | The evening institute: its place in the educational system of England and Wales. National Institute of Adult Education, 1961 | 374.8 |
| HARRISON J. | Learning and living, 1790-1960: A study in the history of the English adult education movement. Routledge and K. Paul, 1961 | 374.942 |
| KELLY T.<br>editor | A select bibliography of adult education in Great Britain, including works published to the end of the year 1950. London, National Institute of Adult Education for Universities Council for Adult Education, 1952 | 374.942 |
| INSTITUTE OF ADULT EDUCATION | Handbook of adult education in the United States; with the co-operation of the American Association for Adult Education; edited by Mary L. Ely. New York, Bureau of Publications, Columbia University, 1948 | 374.973 |
| DOOB L.W. | Communication in Africa: a search for boundaries. New Haven, U.S.A. Yale University Press, 1961. $7.50. | 384 |
| EMERY E.<br>and others | Introduction to mass communications. New York, Dodd, Mead & Co., 1963 | 384 |
| RIVERS W.L. | The mass media: reporting, writing, editing. London, Harper Row, 1964 | 384 |
| SINGTON D. | Freedom of communication. London, Ampersand, 1963 | 384 |

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CANADIAN INSTITUTE ON PUBLIC AFFAIRS. 8th Winter Conference 1962. The Press and the public; edited by D.L.B. Hamlin. 070.1

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KEY TO COMMUNITY, NO. 2: Community program planning; by H.R. Baker. Saskatoon, Canada, Center for community studies, 1962. 301.34

KEY TO COMMUNITY, No. 3: The self-survey in Saskatchewan communities; by Vernon W. Larsen. Saskatoon, Canada, Center for Community Studies, 1963. 301.34

KEY TO COMMUNITY, No. 4: Organizing for co-ordinated effort in communities; by Vernon W. Larsen. Saskatoon, Canada, Center for Community Studies, 1963. 301.34

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| ADULT EDUCATION | every 2 months.<br>published by National Institute of Adult Education. 35, Queen Anne St., London W.1. |
| AFRICAN WOMEN | Bi-annual<br>A journal for women in changing societies.<br>published by Department of Education in Tropical Areas, University of London Institute of Education, Malet St. London. W.C.1. |
| E.B.U. REVIEW, | Magazine.<br>published by European Broadcasting Union, Geneva, Switzerland. |
| EUROPEAN BROADCASTING UNTION REVIEW | Magazine.<br>Educational broadcasting. January 1964. |
| FUNDAMENTAL AND ADULT EDUCATION | Quarterly.<br>renamed: International journal of adult and youth education. |
| INTERNATIONAL JOURNAL OF ADULT AND YOUTH EDUCATION | Quarterly.<br>formerly: Fundamental and adult education.<br>published by U.N.E.S.C.O. |
| COMMUNITY DEVELOPMENT BULLETIN | Quarterly.<br>published by Community Development Clearing House, University of London, Institute of Education, Malet St., London, W.C.1. |

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| M E T A newsletter | 8 times annually.<br>published by Metropolitan Educational Television Association of Toronto. |
| OVERSEA EDUCATION | magazine quarterly.<br>published for the Secretary of State for the Colonies by H.M.S.O. |
| PROGRAMMED LEARNING | magazine<br>Vol I, No.1, May 1964. |
| TELEVISION AND ADULT EDUCATION | Quarterly.<br>published by U.N.E.S.C.O. Paris. |
| PROGRAMMED LEARNING | 3 times annually.<br>journal of the Association for Programmed Learning. |

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